SITE AND REHABILITATION PLAN

Melaleuca
SOUTHWEST NATIONAL PARK

Department of Primary Industries, Parks, Water and Environment
Melaleuca Site and Rehabilitation Plan

Southwest National Park
Tasmanian Wilderness World Heritage Area
**Melaleuca Site and Rehabilitation Plan**

This site and rehabilitation plan applies to Melaleuca which lies in the Southwest National Park and the Tasmanian Wilderness World Heritage Area. It applies to the Melaleuca Visitor Services Zone as well as the former Rallinga mining lease area and nearby sites used for recreational, conservation or operational purposes.

The plan has been prepared, as agreed with the Commonwealth Government, to facilitate mining rehabilitation works; to improve visitors’ experiences in the Melaleuca area; and, to guide site management.

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**Abbreviations and terminology**

chytrid amphibian chytrid fungus
DPIPWE Department of Primary Industries, Parks, Water and Environment
ha hectares
ICOMOS International Council on Monuments and Sites
IUCN International Union for Conservation of Nature
OUV Outstanding Universal Value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity. (Definition from the ‘Operational Guidelines for the Implementation of the World Heritage Convention’).
PWS Parks and Wildlife Service
RSF The Reserve Standards Framework is a PWS policy approach for risk management and sets standards for acceptable levels of visitor risk. It also facilitates the targeted provision of services that are appropriate for specific areas.
TWWHA Tasmanian Wilderness World Heritage Area
UNESCO United Nations Educational, Scientific and Cultural Organisation
VSZ Visitor Services Zone
Visitor Experience Statement

Lying deep within the Tasmanian Wilderness World Heritage Area, Melaleuca is a special and spectacular place to visit. The following statement captures the intended experiences for visitors which this plan aims to facilitate.

Although it is one of the most remote areas of mainland Tasmania, and beyond the road network, Melaleuca receives many visitors arriving by air, sea or on foot. It attracts a wide range of people due to its beauty, isolation, and both natural and human history.

Melaleuca provides a gateway for some visitors to explore the more remote parts of Tasmania’s rugged south-west wilderness. Others appreciate the opportunity to experience the area from air, land and water on a day tour from Hobart. For boaters the area can provide a haven from the wild waters off Tasmania’s south-west coast.

Melaleuca can also be experienced through relaxing day trips, combined with a scenic flight. The facilities and aircraft access enable a wide range of visitors to visit an isolated part of the Tasmanian Wilderness World Heritage Area.

Visitors relish the serenity, the clean fresh air and being in the midst of largely untamed nature. Windswept buttongrass plains create wide open spaces surrounded by mountain ranges and woven with dark waterways fringed by tangled scrub. The lagoon reflects the ever-changing scenery of clouds or clear blue sky.

There are opportunities to explore the Melaleuca vicinity on short walks or boat trips on the tannin-stained winding waterways. Day visitors have time to experience the Needwonnee Walk and see aspects of Tasmanian Aboriginal culture first-hand. They may meet Aboriginal people visiting to share and maintain the cultural features along the walk.

The remnant mining artefacts and the house and garden of the renowned Deny King and his family remind visitors of the history of mining in the area and the ingenuity of the miners.
Visitors can choose to do other activities, including guided tours and kayaking that use Melaleuca as a base – options that can be facilitated by commercial operators.

Bushwalkers commencing or finishing long adventures, or just passing through, welcome the facilities at Melaleuca and may spend a relaxing night or two in the huts.

During their visit, visitors learn about the special character and features of the area through a combination of up-to-date and inspiring interpretive installations.

The heritage of the Tasmanian Aboriginal people and the pioneering miners is respected and explained alongside information about high-profile natural values such as the critically-endangered orange-bellied parrot and the conservation program that is striving to save them; rare plant species that occur nearby; and unique marine species and habitats further afield in Bathurst Harbour.

Engaging new interpretive displays help visitors to understand how special the world heritage and other values of the area are and how they can help protect them.

Standing at the edge of the airstrip at Melaleuca, visitors might reflect on the contrasts of Melaleuca – a remote outpost and airstrip, with its old mines, deep in the heart of the south-west wilderness. They may wonder how the people who made Melaleuca their home felt about living in such an isolated, unique place. Most likely they will appreciate the opportunity to see the world’s rarest and most endangered parrot at its last known wild breeding site.

Visitors leave Melaleuca with an enhanced understanding of the outstanding universal values of the Tasmanian Wilderness World Heritage Area and the particular significance of Melaleuca. They feel privileged to have been able to visit such a special place.
Summary

Melaleuca is a unique location that is part of the Tasmanian Wilderness World Heritage Area (TWWHA), a place that is listed for its natural and cultural values. Part of the Southwest National Park, Melaleuca is one of Tasmania’s most remote areas managed for visitors. Until 2012 it contained a small-scale mining operation. It is the centre of the breeding area for the critically endangered orange-bellied parrot and also an important tourism node. It is an area with great natural and cultural values that attract many people. As with all visitor sites, there are some issues that require careful and considered management to ensure the longevity of the values and continued enjoyment by visitors.

This non-statutory plan provides management direction for Melaleuca that has been established through careful consideration of:

- The protection of natural, cultural, aesthetic and social values of the area, especially world heritage values that contribute to the Outstanding Universal Value of the TWWHA;
- The need to rehabilitate a former mine area;
- The role of Melaleuca in enabling visitor access to the remote south-west and the presentation of the TWWHA;
- The needs of visitors, residential leaseholders, commercial operators, researchers and the Parks and Wildlife Service (PWS); and
- Relevant policies and statutory requirements.

The main strategies in this plan are to:

- Identify and protect world heritage values that contribute to the Outstanding Universal Value of the TWWHA, including Aboriginal heritage values;
- Establish planning zones to guide future use and development of the area;
- Enhance the presentation of Melaleuca and the TWWHA to visitors through improved facilities and interpretation;
- Undertake high priority rehabilitation activities at the former Rallinga mine site, particularly the removal of hazardous materials and contaminated soils;
- Encourage and support continued active involvement of volunteers in the management of Melaleuca;
- Manage habitat to assist in the recovery of the orange-bellied parrot consistent with the Orange-bellied Parrot Recovery Plan; and
- Establish and maintain biosecurity measures to protect important values.

It is intended that this plan will provide management guidance over a ten-year period and will be used by the community, the residential lessees, PWS staff and other stakeholders. Now that it is part of the TWWHA, the Melaleuca area will be protected by the statutory provisions of the new statutory TWWHA management plan. Where any provisions of this plan and the new TWWHA management plan are in conflict, the statutory TWWHA management plan will take precedence.
1. Introduction and reserve management framework

1.1 Significance of Melaleuca

Melaleuca is the most developed and frequently visited location in remote south-west Tasmania. It has outstanding natural and cultural values and is a special place where visitors can access and experience a remote part of the TWWHA. It lies beside Melaleuca Lagoon on the edge of an open buttongrass plain bordered by rugged mountain ranges. There are no roads – access is limited to flying there in light aircraft, walking in on long multi-day treks or arriving by boat via Port Davey and Bathurst Harbour.

The Melaleuca area has distinctive natural, cultural and recreational values. Many natural and Aboriginal heritage values and aesthetic features are recognised as being significant at the world heritage level and contribute to the Outstanding Universal Value of the TWWHA. Significant world heritage features at Melaleuca include areas of undisturbed blanket bog peat soils, rare peat mounds, quaternary sediments containing fossil flora, and essential foraging and nesting habitat of the critically endangered orange-bellied parrot. Melaleuca also provides an important place for visitors to access the TWWHA and the presentation of information about these special features. Other features are described below.

The area has great significance for the Tasmanian Aboriginal community, particularly as it relates to their Creation Story, which is set at Cox Bight. Melaleuca is a key site for interpreting Aboriginal values in the TWWHA, through the Needwonnee Walk.

Melaleuca lies within an area of great natural beauty. It is surrounded by extensive buttongrass plains that are dotted with peat mounds and covered with flowering colour in spring. There are deep creeks with dark tannin-coloured waters that wind through the buttongrass. On sunny days the sky and the distinctive mountain ranges are reflected in Melaleuca Lagoon.

There are important historic sites associated with alluvial tin mining that are of state significance, as well as places of ongoing importance for family and friends of the tin miners and other long-time visitors. It is also a cherished place for people who have other connections with the place.

Community interest and support for the management of Melaleuca has been significant for over 60 years and continues today. Several community groups and organisations regularly visit or volunteer in the area, notably the Friends of Melaleuca (Wildcare Inc.) and the Friends of the Orange-bellied Parrot (Wildcare Inc.), as do the current residential lessees. In earlier times Deny King, with volunteers from bushwalking clubs, built the huts for bushwalkers at Melaleuca. Other stakeholders include recreational clubs, boat-based visitors, residential lease holders and commercial operators.

There is a high visitation level to the Melaleuca area, relative to its remoteness and the different forms of access (walking, boats and planes), however the number of visitors is
much lower than other Visitor Service Sites/Zones in the TWWHA or other Tasmanian national parks.

Melaleuca also provides access to more remote sections of the TWWHA, including Bathurst Channel and Port Davey, Southwest Cape, Cox Bight and the South Coast Track.

1.2 Background information

The Tasmanian Wilderness World Heritage Area

The Tasmanian south-west is an extensive, wild and beautiful temperate land where early heritage of the Tasmanian Aboriginal people and natural values are preserved. The TWWHA was inscribed on the World Heritage list in 1982 as a mixed property under cultural criteria (iii), (iv) and (v) and under all four natural criteria (vii), (viii), (ix) and (x).

A major extension to the property occurred in 1989, and further additions were made in 2011, 2012 (the Melaleuca–Cox Bight area) and 2013. The property currently covers an area of approximately 1.6 million hectares.

The addition of Melaleuca–Cox Bight to the Tasmanian Wilderness World Heritage Area

The Melaleuca–Cox Bight area (Map 1) was not added to the TWWHA until 2012 due to tin mining activity having prevented the Melaleuca enclave being included. This reflected the approach of the World Heritage Committee that mining is not appropriate in world heritage properties.

In response to ongoing concerns being expressed about the location of the 1989 boundary, in 2008 a joint UNESCO, IUCN and ICOMOS reactive monitoring mission visited the property and met with stakeholders. One of the mission’s recommendations (which were predominantly about forestry issues), was the suggestion that any lease for mineral exploration and mining at Melaleuca should not be renewed and that the area should be rehabilitated and incorporated into the property. This recommendation was formalised by the World Heritage Committee in 2008 (World Heritage Committee Decision 32 COM 7B.41). In 2010 the World Heritage Committee formally requested that Australia add the Melaleuca–Cox Bight area to the TWWHA once the existing mining lease expired.

In 2010 the Australian and Tasmanian Governments committed to working together to ensure the area could be incorporated into the TWWHA. In 2011 both governments signed a funding agreement that provided Australian Government assistance to help ensure permanent cessation of mining was achieved through administrative and legal measures and that the former Rallinga Mine area and surrounding Melaleuca–Cox Bight area could be prepared for world heritage status through appropriate planning and environmental remediation.

By February 2012 Australia was able to report good progress to the World Heritage Committee, which agreed to incorporate the Melaleuca–Cox Bight area into the TWWHA in June 2012.
The addition of Melaleuca–Cox Bight to the Southwest National Park

Through a proclamation under the *Nature Conservation Act 2002* on 26 December 2012, the tenure of the Melaleuca–Cox Bight area was changed from Southwest Conservation Area, a tenure which allows for mining, to part of Southwest National Park, a tenure that ensures that mining or exploration can no longer occur. Melaleuca Inlet is part of a Southwest National Park marine zone that is known as Port Davey Marine Reserve. The national park is managed by the Parks and Wildlife Service (PWS) under the *National Parks and Reserves Management Act 2002*.

1.3 Plan purpose and boundary

This non-statutory plan covers the most visited and impacted sites in the Melaleuca vicinity – including places where visitors go, facilities used by commercial operators, the operational areas used by PWS and sites that are important for ongoing scientific monitoring. It includes the Deep Water Landing area, relevant sections of tracks and waterways that are used to access Melaleuca, as well as the former Rallinga Mine lease area within which rehabilitation works will be undertaken (see Map 2).

This plan is for the community, the residential lessees, PWS staff and other stakeholders. It provides management guidance over a ten-year period to facilitate and enhance conservation outcomes, the experiences of visitors and, the operation of the remote PWS base. It describes the contributions of the Melaleuca site to the conservation and presentation of the Outstanding Universal Value of the TWWHA, provides strategies to manage and protect values, and identifies essential actions to rehabilitate the former Rallinga mine area. The plan will be primarily implemented by PWS and through partnerships with stakeholders. Management responses from the plan have been listed in the Implementation Plan (Appendix 2), along with indicative priorities.
Map 1 - Location and Tenure
Melaleuca Site and Rehabilitation Plan
GDA94 - Zone 55
Scale 1:75,000
1.4 Relationship to other plans

The *Melaleuca–Cox Bight Management Statement 2014*

A non-statutory management statement has been prepared at the same time as this site plan to provide non-statutory management guidance for the broader Melaleuca–Cox Bight area. Some information relevant to the Melaleuca area has been included in the management statement instead of this plan, such as information about fire management and acid sulphate soils, to avoid unnecessary duplication.

The *Tasmanian Wilderness World Heritage Area Management Plan 1999* and new TWWHA Management Plan

The Melaleuca area will be covered by the new statutory TWWHA management plan. This non-statutory site plan has been prepared in addition to the statutory TWWHA plan to provide greater detail for the Melaleuca area. Where any provisions of this plan and the new TWWHA management plan are in conflict, the statutory TWWHA management plan will take precedence.

While the majority of the area of this site plan was previously outside the TWWHA (until June 2012) and therefore not covered by the TWWHA management plan (1999), that plan provided non-statutory policy advice on Melaleuca as an ‘adjacent area’. The 1999 TWWHA management plan also designated Melaleuca as a Visitor Services Site, a high-use area where major facilities are located for recreation (previously located outside the TWWHA – now referred to as a Visitor Services Zone) and not spatially defined in detail.

Other plans

This site plan supersedes earlier site plans for Melaleuca that remained in draft form. A Melaleuca–Port Davey Area Plan that was approved in 2003 (and reviewed in 2008) remains in force. Where any provision of this plan and the approved Area Plan are in conflict in relation to Melaleuca, this plan takes precedence. Addressing issues in the Port Davey Marine Reserve and Bathurst Harbour is beyond the scope of this plan and will be covered by a separate plan.
1.5 **Management challenges**

Melaleuca presents some management challenges which have been considered during the preparation of this plan. These include:

- The need to balance the management of a number of issues not normally found together in a national park – an airstrip, potentially the last remaining breeding site of a critically endangered threatened species (orange-bellied parrot) and a recently mined area – surrounded by high-value wilderness.

- The management of a remote place for visitors without road access. This greatly increases the difficulty and expense of accessing and servicing the area.

- Providing for visitor use and enjoyment in a way that does not diminish visitor experiences or degrade the natural and cultural values of the area.

- Providing for the differing needs of a range of people who visit Melaleuca, including fly-in tourists on day trips, customers of commercial tour operators, boat-based visitors, independent bushwalkers and residential lease-holders.

- The facilitation of suitable, sustainable and compatible use of the area for staff, scientific research, conservation programs and commercial operators.

- The need to improve the aesthetic and natural condition of the mine site without diminishing natural and cultural values or detracting from the ongoing use and presentation of the wider area.

1.6 **Overarching objectives**

This plan is consistent with the provisions of the *Tasmanian Wilderness World Heritage Area Management Plan 1999*, the statutory management plan for the surrounding area.

The overall objective of management for the TWWHA, in line with the UNESCO World Heritage Convention, is to:

- Identify, protect, conserve, present and, where appropriate, rehabilitate the world heritage and other natural and cultural values of the TWWHA, and to transmit that heritage to future generations in as good or better condition than at present.

Additional overarching objectives of management (TWWHA management plan) include:

- To identify and take appropriate protective action to prevent, mitigate or manage within acceptable limits, adverse impacts on, or threats to, the world heritage and other natural and cultural values of the TWWHA.

- To conserve the values of the TWWHA in a manner consistent with their natural and cultural significance.

- To assist people to appreciate and enjoy the TWWHA in ways that are compatible with the conservation of its natural and cultural values, and that enrich visitor experience.

Other overarching objectives in the TWWHA management plan include engaging the community and managing the TWWHA with excellence.

The *National Parks and Reserves Management Act 2002* lists various objectives for management of national parks, including protecting natural biological and geological...
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diversity, water quality, and encouraging and providing recreational use and enjoyment consistent with the conservation of the national park’s natural and cultural values. These objectives, which align with the TWWHA plan objectives, also apply here.
2. Values of Melaleuca

2.1 World heritage values

Many natural and cultural features at Melaleuca or in the surrounding area\(^1\) are considered to be world heritage values that contribute to the Outstanding Universal Value\(^2\) of the TWWHA. The following examples are listed based on the relevant world heritage criteria:\(^3\)

**Outstanding examples representing the major stages of the earth’s evolutionary history** such as the peatlands, relict biota such as the orange-bellied parrot, ground parrot and indigenous frog species with Gondwanan origins (eg Tasmanian froglet and Tasmanian tree frog).

**Outstanding examples representing significant ongoing geological processes, biological evolution and man’s interaction with his natural environment** such as the development of peat soils and blanket bogs, ecosystems which are relatively free of introduced plant and animal species and species whose habitat elsewhere is under threat (eg ground parrot, spotted-tail quoll and swamp antechinus).

**Contain superlative natural phenomena, formations or features, for instance outstanding examples of the most important ecosystems, areas of exceptional natural beauty or exceptional combinations of natural and cultural elements** such as viewfields and sites of exceptional natural beauty associated with buttongrass, heath and moorland extending over vast plains.

**Contain the most important and significant habitats where threatened species of plants and animals of outstanding universal value from the point of view of science and conservation still thrive** such as endemic plant and animal taxa of conservation significance including the south-west moorland, orange-bellied parrot, ground parrot, spotted-tail quoll, swamp antechinus and other threatened endemic species.

**Bear a unique or at least exceptional testimony to a civilisation which has disappeared** such as Pleistocene archaeological sites that are unique, of great antiquity and exceptional in nature, demonstrating the sequence of human occupation at high southern latitudes during the last ice age.

**An outstanding example of a traditional human settlement which is representative of a culture which has become vulnerable under the impact of irreversible change** such as archaeological sites which provide important examples of the hunting and gathering way of life, showing how people practised this way of life over long time periods, during often extreme climatic conditions and in contexts where it came under the impact of irreversible socio-cultural and economic change.

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\(^1\) The cultural values noted in this section are for the whole TWWHA. No Aboriginal archaeological sites have been identified at Melaleuca as yet. See the Melaleuca–Cox Bight Management Statement for information about Aboriginal heritage sites at Cox Bight and the social and spiritual significance of the area for the Tasmanian Aboriginal community.


\(^3\) The TWWHA is listed as a world heritage site based on the following cultural and natural criteria: (iii)(iv)(v)(vi)(vii)(viii)(ix)(x). The criteria are explained in the ‘Operational Guidelines for the Implementation of the World Heritage Convention’.
Directly or tangibly associated with events or with ideas or beliefs of outstanding universal significance such as archaeological sites including Pleistocene sites, which demonstrate the adaptation and survival of human societies to glacial climatic cycles and periods of long isolation from other communities (e.g. the human societies in this region were the most southerly known peoples on earth during the last ice age).

2.2 Landscape values

The landscape around Melaleuca is dominated by extensive buttongrass plains, clusters of scrub, the surrounding mountains, Melaleuca Lagoon and the waterways – Melaleuca Inlet, Melaleuca Creek and Moth Creek. The views from Melaleuca are characteristic of the south-west and the natural beauty, the scenic variety and the relative lack of visible intrusions are important attractions for visitors. The extensive buttongrass landscape is a contrast to the dense forests and alpine landscapes visitors see at other key visitor areas in the TWWHA such as Mt Field and the Hartz Mountains.

The landscape also incorporates cultural elements as the land of the Needwonnee people. The present distribution of buttongrass moorland is considered to reflect a history of burning by Aboriginal people and the plan area is therefore also part of a broader cultural landscape. The Melaleuca landscape also bears witness to previous small-scale mining activity.

Wilderness mapping of the TWWHA was undertaken in 2005, based on a modified version of the National Wilderness Inventory methodology (see Hawes 2005, Lesslie and Maslen 1995), where wilderness quality is determined as a function of remoteness and naturalness. Although the Melaleuca area itself has a relatively low wilderness quality score (6-7 out of 20) due to a range of factors such as the presence of built facilities and mechanised access, it provides visitors with an opportunity to experience a wild and remote landscape. See the Melaleuca–Cox Bight Management Statement for more information about the Aboriginal cultural landscape values and the wilderness quality assessments for the area.

Management situation

Considerations regarding landscape and scenery at Melaleuca are largely related to the significance of the area as an Aboriginal landscape and for viewfield management.

The white quartzite Bathurst Harbour Landing Area, other bare gravel areas, some former mine workings and several small structures are visible when visitors arrive from the air and can also be seen from surrounding vantage points. Some signs, walking tracks and structures are also visible.

 Desired outcome

- The largely natural setting and viewfields of Melaleuca have been maintained.

Management response

- Where practical, minimise the visual intrusiveness of infrastructure through sensitive siting and appropriate design.
2.3 Geoheritage values

The Melaleuca area is underlain by rock formations that date from the Proterozoic Eon (2500 - 542 million years ago) and predominantly consist of quartzite, phyllites and schists.

Quaternary (less than 2 million years old) deposits occur in the valleys, bays and inlets, with some of the deepest including the 3 - 16m thick sands and gravels in the Melaleuca valley. In some places they are overlain by freshwater deposits including deltas, fans and gravels. Fossilised plants have been found in some of these deposits and are part of the ‘Cenozoic Plant Macrofossils of Tasmania (3173)’ geosite. This fossil record is crucial to the understanding of the evolution of the flora of Tasmania and its response to climatic and other environmental changes.

The Melaleuca area is covered extensively by blanket bogs, composed of organosols (organic soils or peats). Blanket bogs form in low-nutrient, poorly drained environments with relatively low temperatures, moderate rainfall and low evaporation which enables peat accumulation. Most have formed over the last 8 000 years. The blanket bogs at Melaleuca are part of the extensive ‘Western Tasmania Blanket Bogs (2527)’ geosite that encompasses areas covered by organosols and moorland vegetation in western Tasmania and is the most extensive organosol terrain in the Southern Hemisphere.

The peatlands contain other morphological features considered significant at the world level. These include peat mounds that occur in a number of lowland locations, with some clusters located within one kilometre south of the Melaleuca Visitor Services Zone.

Management situation

Fire is considered to be the main issue that is likely to affect blanket bogs and peat mounds. Individual mounds could be damaged by trampling, but it is unlikely that a track would be routed over a mound in preference to neighbouring flat ground. Mounds could potentially be damaged by changes to catchment hydrology but there is no obvious mechanism for this to occur.

Research to improve understanding of the potential impacts of different burning regimes would be beneficial.

Fossil values are vulnerable to damage and concealment (loss of access for scientific research).

Desired outcome

- Significant geoheritage features are protected.

Management response

- Follow applicable burning prescriptions for buttongrass moorland to avoid degrading organosols, peat and bog features through planned burns.
• Monitor impacts on geodiversity and earth processes caused by potential influences such as planned burn regimes and recreation activities.
• Liaise with the Geoconservation Management Section regarding research about the potential impacts of different burning regimes.

2.4 Flora and fauna values

The Melaleuca area is dominated by western lowland sedgeland that predominantly consists of buttongrass (*Gymnoschoenus sphaerocephalus*), with tea tree occurring on banks of creeks and watercourses.

Melaleuca provides important habitat for some endemic flora species, such as *Haemodorum distichophyllum* and straggling heath (*Epacris corymbiflora*). Species of conservation significance include the paleo-endemics *Campynema lineare* and dwarf leatherwood (*Eucryphia milliganii*).

Phytophthora (*Phytophthora cinnamomi*), a root rot fungus that affects many lowland plants, is widespread throughout the Melaleuca area. Many susceptible species occur in buttongrass moorlands.

The buttongrass moorland at Melaleuca provides habitat for a variety of fauna species. Peat mounds within 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 moorlands provide habitat for a variety of species that include spotted-tail quolls (*Dasyurus maculatus* subsp. *maculatus*), swamp antechinus (*Antechinus minimus* subsp. *minimus*) and burrowing crayfish (*Spinastacoides inermis* and *Spinastacoides insignis*). Some of these species spend their entire life-cycle in the buttongrass moorlands.

The scrub is also habitat for ringtail possum (*Pseudocheirus peregrinus*), eastern pygmy possum (*Cercartetus nanus*), various bats and the endemic long-tailed mouse (*Pseudomys higginsi*). The vegetation around Melaleuca is critical as foraging and nesting habitat for orange-bellied parrots (*Neophema chrysogaster*). An abundance of terrestrial and freshwater invertebrate fauna also occur there, many of which are endemic to Tasmania and have Gondwanan affinities. The Tasmanian devil (*Sarcophilus harrisii*) is present at low densities throughout the area but is rarely observed at Melaleuca. Devils are more frequently encountered in coastal areas of the TWWHA, such as Cox Bight, where they forage in the beach and dune zones (M. Holdsworth pers. comm.).

The buttongrass moorland is important habitat for the migratory and critically endangered orange-bellied parrot (see the ‘Research and conservation programs’ section for more information about the orange-bellied parrot). The very common, but elusive, ground parrot (*Pezoporus wallicus*) also forages and nests in the buttongrass plains of Melaleuca. The area also provides habitat for the striated field wren (*Calamanthus fuliginosus*) and the...
southern emu-wren (*Stipiturus malachurus*).

Reptiles and amphibians common in the buttongrass moorland include threatened and endemic frogs, such as the Tasmanian tree frog (*Litoria burrowsae*) and the Tasmanian froglet (*Crinia tasmaniensis*). Natural and artificial water bodies, are important habitat for frogs, such as the ponds in the old mine area.

**Management situation**

The composition of the buttongrass moorland vegetation has changed due to the dieback of species susceptible to Phytophthora.

Monitoring the extent and condition of the buttongrass moorlands in response to climate change and fire regimes is a priority in the TWWHA.

The maintenance of habitat for significant species requires appropriate planned burning regimes.

Significant fauna values may be impacted by introduced pests and diseases, particularly rodents, cats and starlings. Frogs are vulnerable to amphibian chytrid fungus (‘chytrid’), a disease decimating frog populations worldwide. The Tasmanian tree frog is considered to be highly susceptible to the disease. (See the ‘Diseases, introduced species and biosecurity’ section for more information and management responses).

**Desired outcome**

- Native plant and animal populations and communities are healthy.

**Management response**

- Support and facilitate surveys, monitoring and research of rare or threatened plants and animals and their habitats.
- Retain natural and artificial water bodies as habitat for frogs.
- Monitor the status of the Tasmanian tree frog and chytrid fungus.

**2.5 Aboriginal heritage values**

Melaleuca is a small part of the homeland of the Needwonnee people who belonged to the South West Nation. The Melaleuca–Cox Bight landscape and Aboriginal heritage values are of great significance for the Tasmanian Aboriginal community. Cox Bight has particular social and spiritual connections for Tasmanian Aboriginal people as it is closely associated with their Creation Story.

See the *Melaleuca–Cox Bight Management Statement* for more detailed information about the Aboriginal heritage values, including the spiritual and social connection of the Tasmanian Aboriginal community to the Melaleuca–Cox Bight area and the significance of the landscape.
Management situation

Although it is likely that Aboriginal heritage sites occur at Melaleuca, none have been identified. The detection of sites is problematic due to the dense vegetation and therefore a strategy of undertaking surveys following fires may be useful. Some of the Melaleuca area has been disturbed, however there is still potential for Aboriginal heritage sites to be identified.

The PWS and the Tasmanian Aboriginal community have collaborated to develop and maintain the Needwonnee Walk. See the ‘Information and interpretation’ section for information about the Needwonnee Walk.

Broad management approaches regarding traditional resource use, collaboration and co-operative management with the Tasmanian Aboriginal community are provided in the TWWHA management plan.

Desired outcomes

- Aboriginal heritage values at Melaleuca are recorded, appropriately managed and monitored.
- The Tasmanian Aboriginal community is involved in the identification, conservation and monitoring of Aboriginal heritage values at Melaleuca.

Management response

- In collaboration with the Tasmanian Aboriginal community conduct surveys to identify Aboriginal heritage values at Melaleuca.
- In partnership with the Tasmanian Aboriginal community, ensure that values are recorded, threats are understood and appropriate management and monitoring occurs for sites where Aboriginal heritage values have been identified.

2.6 Historic heritage values

Many of the developed parts of Melaleuca are associated with twentieth century mining operations that occurred there. These mines were small-scale and the miners essentially had to be self-reliant on account of their isolation.

Small-scale mining activity has occurred in the Melaleuca area since cassiterite (tin oxide) was discovered in the bank above Melaleuca Creek in 1935. The New Harbour Tin Development Company was first to mine the Melaleuca area, starting in 1936, followed by Eric Brock, Charles George King (and his daughter Win and son Deny). During the 1940s and 1950s about ten other individuals and partnerships worked tin leases in the site area, followed later by Ludbrooks (Quintex Ltd), and up until recently, Peter and Barbara Willson (Rallinga Mine).

Deny King was a popular figure and is a significant focus of historic interest in the Melaleuca area. He lived at Melaleuca from 1945 to 1991, along with his wife Margaret and their children Mary and Janet. They built the house at Moth Creek in 1946, developed a garden, and constructed several structures associated with the tin mine. The heritage significance of the King family’s residential area and remaining sheds and items associated with Deny’s mining works were recognised in 1999 when the place was registered by the Tasmanian Heritage Council (THR 10975). The listing also recognised the significance of
features of the lives of Deny King and his family, including their self-reliant lifestyle. The re-use of materials and creative improvisations and innovations are also considered to be a significant part of the heritage values of the site.

Deny King built the Bathurst Harbour Landing Area in 1955–57 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. PWS assumed responsibility for the Landing Area in 1991.

The Charles King Memorial Hut was built by Deny King and members of the Hobart Walking Club in 1959–61 and was named in honour of Deny’s father. The second hut was built by Deny King in 1974–75 with assistance from bushwalking clubs. The Charles King Memorial Hut is of historic heritage value, while the other hut is of probable social heritage and recreational value. As noted by Parham and Terry (2010), “the distinctive forms of the bushwalkers’ huts, along with the King/Fenton residence are a signature feature of the place... the Charles King Memorial Hut is of high significance demonstrating the growth of popularity of bushwalking in the south west and Deny King’s relationship with visitors to Melaleuca”.

In 1974 Peter and Barbara Willson bought a nearby mining lease from Deny King’s sister, Winsome Clayton, which became known as Rallinga Mine. They continued the tradition of small scale alluvial mining at Melaleuca. The smelter, constructed by the Willsons to refine the tin, is the only surviving example of on-site smelting in a small mine in Tasmania. The Willsons relinquished the lease in 2011 and Barbara Willson was granted a smaller residential lease. (See the ‘Rehabilitation of Rallinga Mine area’ section for more information about the Willsons’ association with Melaleuca).

Although they have not been recognised as being of Outstanding Universal Value, the mining activities and associated heritage values are significant from a Tasmanian perspective. They have been an influential part of the social fabric and historic heritage of the area over the years and have influenced the appearance of the Melaleuca landscape.

Management situation

The conservation of historic heritage attributes within the residential lease and the two bushwalker huts are guided by the ‘Draft Melaleuca Conservation Management Plan’. It
was prepared in 2010 by David Parham and Ian Terry for the Friends of Melaleuca (Wildcare Inc.) and PWS. This plan needs extending to cover more of the mining heritage.

Heritage artefacts located within the residential lease held by the family of Deny King are primarily maintained by family and the Friends of Melaleuca (Wildcare Inc.) volunteers, as are some other structures and items that are located within the area registered by the Tasmanian Heritage Council (THR 10975) such as the ‘red shed’. Some artefacts are important for understanding Deny King’s mining techniques and ingenuity.

Various parts of Peter and Barbara Willson’s former mine area are the focus of a rehabilitation project to remove contaminated soil, hazardous waste and other items. However, the processing plant and smelter areas have been retained for their immediate association with the mining operation and heritage value. Both areas contain safety hazards and therefore public access needs to be managed.

They have the potential to become part of the in situ interpretation of the mining history of Melaleuca if the hazards can be appropriately managed. For more information regarding the heritage values of the former Rallinga mine, refer to the ‘Rehabilitation of the Rallinga Mine area’ section.

**Desired outcome**

- Historic heritage features have been appropriately recorded and are managed to enable the conservation and interpretation of their heritage values.

**Management response**

- Continue to work with and support the Friends of Melaleuca (Wildcare Inc.) volunteers to maintain heritage values. Maintenance activities should be approved by PWS and relevant work should be consistent with the conservation policies and recommendations of the ‘Draft Melaleuca Conservation Management Plan’.

- Document heritage values associated with the former Rallinga Mine so that there is a complete record and information that can be used to inform management decisions.

- Prepare a Conservation Management Plan for the heritage values associated with the former Rallinga Mine when additional resources become available.
3. Reserve protection

See the Melaleuca–Cox Bight Management Statement for information about climate change and fire management, as well as additional information about the topics covered in this section.

3.1 Diseases, introduced species and biosecurity

While Melaleuca is relatively free of introduced plant and animal species and diseases due to its remoteness and environmental factors, some exist there or may be introduced and are therefore a concern.

A number of diseases threaten values of the plan area. Phytophthora, the root-rot soil pathogen, is widespread at Melaleuca. Phytophthora has been confirmed throughout the plan area and it is likely that the whole area is affected. Chytrid fungus infects the skin of frogs resulting in the disease chytridiomycosis. It has caused significant declines and extinctions in amphibian populations in Australia and overseas, and has already led to the widespread death of many of Tasmania’s native frogs, but has not been detected at Melaleuca. Psittacine Beak and Feather Disease, endemic in the orange-bellied parrot population is managed under the Orange-bellied Parrot Recovery Program. Other diseases present in Tasmania that may become prevalent at Melaleuca in the future include Devil Facial Tumour Disease and platypus mucormycosis.

There are some low-level and isolated weed infestations present. Exotic plants, such as rhododendrons and fruit plants, are mostly present around the King homestead and garden area as well as several trees and loganberry plants around the Willson family’s residence. The garden and certain plants located around the King homestead are considered to be of cultural significance. Some minor weeds such as grasses and clover are known to be present in the former Rallinga mine area. The expansion of some invasive plant species is facilitated by birds.

A number of introduced vertebrate species are known to have occurred at Melaleuca. The presence of rodents, particularly black rats (Rattus rattus) and mice (Mus musculus), poses a significant threat to orange-bellied parrots and many other values. At least two outbreaks of introduced rats have been detected and eradicated, and monitoring is undertaken to detect future incursions. Mice have not been detected at Melaleuca. Feral cats (Felis catus) are sighted regularly in the Cox Bight area and may venture to Melaleuca. Non-native birds such as starlings (Sturnus vulgaris) also pose a threat because they can compete with orange-bellied parrots for nest sites in tree hollows. European wasps and bumble bees are recent arrivals.

Management situation

Phytophthora diminishes habitat quality and reduces floristic diversity, particularly that of dominant emergent shrubs such as banksia and some endemic epacrid species. Although it is very widespread in the plan area and cannot be eradicated, visitors and wildlife are the major vectors for the spread of infected soil and water and are likely to spread Phytophthora beyond the currently infested areas. The spread of Phytophthora may be accentuated with frequent fire and climatic changes.
Melaleuca provides important habitat for the Tasmanian tree frog and the Tasmanian froglet. Both species are highly susceptible to chytrid which is widespread outside the TWWHA. A monitoring program has been established at Melaleuca to detect the introduction of the fungus to Melaleuca and to monitor the status of at-risk frog species. In order to maintain frog health, much of the plan area has been identified as a priority area to prevent the introduction of chytrid. A Chytrid Exclusion Area and associated guidelines have been proposed for Melaleuca to enhance visitor awareness of chytrid and other pathogens, at-risk values and to detail simple hygiene measures to mitigate the spread of chytrid fungus into the area. The proposal may be extended to cover other biosecurity risks at Melaleuca and other locations in the TWWHA. Additional measures may be used to cover other biosecurity risks at Melaleuca should they arise.

The ongoing management of introduced vertebrate species at Melaleuca consists of general monitoring and the periodic control or eradication of starling and rat incursions. Starlings are shot and their nests are destroyed in orange-bellied parrot breeding areas at Melaleuca as part of an ongoing control program to protect nests. An incursion of black rats occurred recently (possibly from a vessel) which posed a threat to many natural values, in particular the orange-bellied parrot. It is thought that prompt action resulted in the eradication of the rats, however continued monitoring and use of poisoned baits within buildings will be maintained. Active control or eradication of other species may become necessary in the future.

See the Melaleuca–Cox Bight Management Statement for more information about the management of plants of cultural value and biosecurity, particularly regarding the development of a biosecurity plan and procedures.

**Desired outcomes**

- No new pests or pathogens are introduced into the Melaleuca area and incursions are controlled or eradicated where it is feasible to do so.
- The plan area remains free of chytrid fungus.
- Visitors and staff follow biosecurity procedures.

**Management response**

- Encourage visitors to keep to designated paths and follow basic hygiene practices to reduce the spread of Phytophthora beyond currently infected areas.
- Provide pre-visit biosecurity information to visitors about the need for hygiene measures and appropriate equipment management to reduce the risk of diseases or invasive species being introduced to the plan area or spread to other locations.
- Continue to monitor for the presence of chytrid fungus and the health of at-risk frog species.
- Ensure visitors and staff follow hygiene measures for all gear and equipment to reduce the movement of water and soil to or within the plan area to minimise the likelihood of the introduction of chytrid fungus and other pathogens and weeds.
- Monitor for exotic plants that may spread from the gardens within the residential lease or Rallinga mine areas, especially if they could cause weed issues in the national park.
• Enhance visitor awareness of biosecurity risks at Melaleuca, such as the establishment of a Chytrid Exclusion Area and associated biosecurity guidelines for visitors, interpretive signage and other information.

• Continue to record any sightings of introduced species in the plan area.

• Undertake a monitoring program each year for the detection of introduced rodents.

• Where practical and warranted, undertake control or eradication programs for introduced species to protect orange-bellied parrots and other vulnerable values.

• Take immediate action to eliminate any outbreaks of introduced rodents or other significant introduced species that pose a threat.

3.2 Research and conservation programs

A number of scientific research and conservation programs are undertaken at Melaleuca. Research projects should be consistent with and contribute to the knowledge and maintenance of the values of the area, as well as the ‘Research and Monitoring Priorities 2013–18’ for the TWWHA.

A number of other long-term research programs are undertaken at Melaleuca. For example, an ongoing monitoring program assesses chytrid fungus and at-risk frog populations. There is also baseline water quality monitoring that is undertaken in relation to visitor activities on Moth and Melaleuca Creeks; long-term monitoring of the marine invertebrate community in nearby waterways; and, a bank erosion monitoring program that includes several sites in Melaleuca Creek and Melaleuca Inlet within the plan area.

Orange-bellied Parrot Recovery Program

The orange-bellied parrot (Neophema chrysogaster) is one of the world’s rarest and most threatened species of parrot. The parrots are recognised as a world heritage value of the TWWHA. As the principal breeding habitat and potentially the last wild breeding site of the orange-bellied parrot, conservation activities that are undertaken at Melaleuca are an essential part of the conservation of the species.

It is estimated that the majority of the wild breeding population of the parrot occurs within ten kilometres of the Bathurst Harbour Landing Area. This is probably due to the favourable historic fire regime that produced a mosaic of moorland age classes. The wild population is estimated to be no more than 50 individuals.

The conservation of the orange-bellied parrot is guided by the National Recovery Plan. This recovery plan includes a number of research and management activities (recovery actions) that are implemented within the Melaleuca area. Implementation of recovery actions within Tasmania is the responsibility of PWS and the Orange-bellied Parrot Management Group within the Department of Primary Industries, Parks, Water and Environment (DPIPWE), hereafter referred to as the ‘Recovery Program’. A National Recovery Team reviews and provides priority setting advice to the Recovery Program, consistent with the National Recovery Plan.
Management situation

The orange-bellied parrot is a critical value to be protected in the Melaleuca area. High priorities are the minimisation of disturbance, the implementation of on-ground actions to enhance their breeding effort and survival; protection of the breeding habitat; and the enhancement of important foraging habitat. Under a cooperative program between DPIPWE and Wildcare Inc., volunteers assist in monitoring Melaleuca’s orange-bellied parrot population during the summer breeding season. Supplementary feeding and the provision of artificial nesting boxes are management tools used as part of the Recovery Program. Captive-bred orange-bellied parrots may also be released at Melaleuca in order to augment the wild population.

Planned ecological burns are undertaken to enhance foraging habitat around Melaleuca to provide sufficient food plants for the orange-bellied parrot. Invasive species, including common starlings and feral honeybees, have been known to invade or disturb nest sites. Feral cats are a potential predator but have rarely been seen at Melaleuca. Psittacine Beak and Feather Disease is also a threat to the survival of individuals but has been more prevalent in the captive breeding populations. Hygiene of the feed table and nest boxes under the Recovery Program is an important tool to reduce the risk of outbreaks of the disease.

It has been observed that the parrots have a lower tolerance to helicopters compared to fixed-wing aircraft (Quin and McMahon 2001); however increased fixed-wing aircraft use at Melaleuca may also disturb the parrots. Parrots have been observed to be sensitive to some aspects of visitor activity such as sudden or sharp noises or movements, hence varying levels and types of visitor activity also have the potential to affect parrots and cause disturbances, such as interrupting feeding.

Melaleuca is an increasingly popular destination for bird-watching tours. High numbers of uncontrolled visitors focused on observing orange-bellied parrots have the potential to adversely affect the Recovery Program activities or disturb the birds.

Research and conservation programs can have environmental impacts, such as the cumulative collection of samples or the disturbance of sensitive sites.

Desired outcomes

- The foraging habitat of the orange-bellied parrot is enhanced through ecological burning.
- The disturbance of orange-bellied parrots has been minimised and management activities have been undertaken to maintain important habitat.
- The orange-bellied parrot monitoring and management program has monitored trends and effectively implemented priority management actions.
- Sites used for important ongoing research, monitoring and conservation programs are maintained to ensure that their scientific value is not jeopardised.
- The orange-bellied parrot population increases.
Management response

- Continue to support the activities of the Orange-bellied Parrot Recovery Program at Melaleuca. All activities should be consistent with the National Recovery Plan and be endorsed by relevant specialists and PWS.

- Continue to require aircraft operators to follow the relevant ‘Fly Neighbourly Advice’ to minimise potential disturbance levels.

- Consider management strategies to ensure that bird observers and other visitors do not adversely affect orange-bellied parrots. Management strategies should be developed in consultation with the Orange-bellied Parrot Recovery Program.

- Avoid undertaking activities during the orange-bellied parrot breeding season that are likely to cause high levels of disturbance, such as repeated helicopter use. It is important that specialist advice is sought to ensure that development and other on-ground activities do not adversely affect the species.

- Spatial information about important sites used for ongoing research, monitoring and conservation programs should be provided to PWS to ensure that the sites can be protected from potential impacts caused by other activities in the area.
4. Visitors and facilities

Some of the first facilities at Melaleuca were developed by the King family and walking clubs. These included the Bathurst Harbour Landing Area and the bushwalking huts. Facilities have changed over the years in response to the type and number of visitors and the subsequent management requirements.

Recent investments made to enhance the experience of visitors to Melaleuca include the construction of the Needwonnee Walk, interpretation panels about the Port Davey Marine Reserve, a new toilet and new pontoon and mooring facilities.

A range of people visit Melaleuca and use the facilities there. The following table provides an indication of the type of visitors, the experiences they seek and the facilities they may require.

### Visitor characteristics

<table>
<thead>
<tr>
<th>The type of visitor</th>
<th>The experience wanted</th>
<th>The facilities required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day visitors</td>
<td>A rewarding, convenient and accessible destination for a short visit</td>
<td>Landing Area for aircraft</td>
</tr>
<tr>
<td></td>
<td>Opportunities to quickly learn about natural and cultural values</td>
<td>Appropriate access tracks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Short walk opportunities and other activities (up to half-day in duration)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Convenient toilet access and shelter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High quality interpretation</td>
</tr>
<tr>
<td>Bushwalkers commencing walks, finishing walks or passing through</td>
<td>A comfortable and relaxing place to stay, to access surrounding areas or to use as a departure point</td>
<td>Landing Area for aircraft</td>
</tr>
<tr>
<td></td>
<td>A place to learn about natural and cultural values</td>
<td>Appropriate tracks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High quality interpretation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Clear signage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Walker registration</td>
</tr>
<tr>
<td>Bushwalkers commencing walks, finishing walks or passing through</td>
<td></td>
<td>Suitable level of facilities, especially huts, campground and toilets if staying overnight</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suitable landing facilities on Melaleuca Creek</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Places to moor vessels overnight</td>
</tr>
<tr>
<td></td>
<td></td>
<td>High quality interpretation</td>
</tr>
<tr>
<td>Visitors arriving by boat</td>
<td>A rewarding and tranquil place for a short visit and to access surrounding areas</td>
<td>Easy-to-find facilities and clear signage</td>
</tr>
<tr>
<td></td>
<td>A place to learn about natural and cultural values</td>
<td>Appropriate access tracks</td>
</tr>
<tr>
<td>Visitors or volunteers based at Melaleuca for multiple days</td>
<td>A tranquil and comfortable place to stay and explore or be involved in volunteer activities</td>
<td>Landing Area for aircraft</td>
</tr>
<tr>
<td></td>
<td>A place to learn about natural and cultural values</td>
<td>Appropriate access tracks</td>
</tr>
<tr>
<td>Residents (lease-holders)</td>
<td>A relaxing and secluded place to stay</td>
<td>Landing Area for aircraft</td>
</tr>
<tr>
<td></td>
<td>Being able to continue their long-standing</td>
<td>Appropriate access tracks</td>
</tr>
</tbody>
</table>


The type of visitor | The experience wanted | The facilities required
--- | --- | ---
association with Melaleuca | Privacy | Boat access

**Other types of users**

Commercial operators | Being able to provide high quality experiences for guests | Landing Area for aircraft
| | | Appropriate access tracks
| | | Clear signage
| | | Convenient short walk opportunities
| | | High-quality interpretation
| | | Appropriate level of facilities, especially toilets and storage
| | | Boat facilities and access

Scientists and researchers | Being able to undertake research and monitoring work | Protection of monitoring sites
| | | Landing Area for aircraft
| | | Appropriate access tracks
| | | Appropriate level of facilities, especially toilets and accommodation
| | | Storage
| | | Boat facilities and access

PWS staff | Being able to undertake management activities | Landing Area for aircraft
| | | Appropriate level of facilities, especially toilets and accommodation
| | | A management base and storage area
| | | Boat facilities and access

## 4.1 Management zones

The zoning in this plan (see Map 3) is consistent with the zoning established in the Melaleuca–Cox Bight Management Statement and is broadly based on the TWWHA management plan zoning framework. The Visitor Services Zone is based on the zoning of the Melaleuca–Port Davey Area Plan 2003. It is intended that the zoning in this plan will provide a guide for the management of the area until updated zoning is provided in an approved new statutory TWWHA management plan.

All water-based boundaries for the zones at Melaleuca are based on the high-water mark.

The Visitor Services Zone covers the main visitor areas at Melaleuca – the airstrip, walkers’ huts, the Needwonnee Walk, shelters, toilets and linking tracks.

The South Coast and Port Davey walking tracks that leave from Melaleuca are designated as Recreation Zone, as are the waterways. Linear sections of Recreation Zone that follow track routes are 20m wide (10m on each side of the track).

The remainder of the plan area is zoned Wilderness, in keeping with the values, existing use patterns and zoning for the surrounding Southwest National Park.

Two types of overlay areas have been used to reflect specific additional management uses – Motorised Boating Area and Remote Area Management Site. Motorised Boating Area
overlays have been designated over all navigable parts of key waterways in the plan area. Only authorised vessels are allowed to enter Melaleuca Lagoon and Moth Creek (unauthorised vessels are not permitted east of 146°09.525’ at the mouth of Melaleuca Lagoon, however access to Melaleuca Creek is still available).

A Remote Area Management Site covers the vehicular route to Deep Water Landing, providing for specific management use of this area (the infrequent transfer of vehicles to or from Deep Water Landing in dry conditions) in what would otherwise be a Wilderness Zone, as well as a small zone over the existing PWS staff accommodation area.

A Remote Area Management Site has also been designated over an area south of the Landing Area. It extends from the Visitor Services Zone down to storage areas located south of the residential lease (areas that will be accessible using retained tracks). This area has existing impacts and has been identified for various operational uses by PWS, including storage of gravel for the maintenance of the Landing Area. It is also a potential site for the future relocation of some management facilities.

It is proposed that visitor services functions are to be kept to the north of the Landing Area with the majority of ongoing conservation, monitoring and operational functions being located to the south Landing Area. This is reflected in the zoning and is intended to minimise risks to public safety as well as reduce noise and interruptions for visitors from management operations such as use of power tools. The details of the proposed changes are outlined in the ‘Operational facilities’ section.
unauthorised motorised vessels are not permitted east of 146°09.525' at the mouth of Melaleuca Lagoon.

Linear sections of Recreation Zone follow track routes (20m wide).
### Zone and overlay objectives

<table>
<thead>
<tr>
<th>Zone</th>
<th>Purpose</th>
<th>Zone and overlay objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visitor Services Zone</td>
<td>High-use areas and boat/aircraft access points</td>
<td>• To provide a range of appropriate facilities strategically located to facilitate visits to the plan area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To maintain, as far as possible, a natural setting and cultural integrity and to minimise the environmental, aesthetic and social impacts of facilities and visitor use.</td>
</tr>
<tr>
<td>Recreation Zone</td>
<td>Major walking and boating areas</td>
<td>• To provide a range of recreational experiences in a moderately challenging, largely natural setting that suitably equipped people can use for recreation purposes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To enable relatively high levels of active day and overnight recreation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To improve access for a wide range of visitors and enable them to gain a rewarding experience in the plan area.</td>
</tr>
<tr>
<td>Wilderness Zone</td>
<td>Wild country; limited recreation</td>
<td>• To allow natural processes to operate with minimal interference.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To retain a challenging unmodified natural setting that suitably experienced and equipped people can visit for wilderness recreation and scientific purposes.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• To use wilderness as a primary means of managing, protecting and conserving world heritage and other natural and cultural values.</td>
</tr>
<tr>
<td>Motorised Boating Area</td>
<td>Indicate where motorised boats may be used</td>
<td>• To allow for mechanised boating access consistent with the protection of world heritage and other natural and cultural values and recreational values.</td>
</tr>
<tr>
<td>Remote Area Management Site</td>
<td>Indicate remote areas for operational use</td>
<td>• To provide for vital infrastructure in an otherwise remote setting.</td>
</tr>
</tbody>
</table>

### 4.2 Access — aircraft, boating and walking

The main ways of accessing Melaleuca are by aircraft, boat or walking. The management of visitor access is a key component in protecting the special qualities of Melaleuca and the recreational experience of all visitors.

#### Aircraft access

The Bathurst Harbour Landing area (‘Landing Area’) was first built in its present location by Deny King in the 1950s from compacted quartzite gravel. It has been upgraded on a number of occasions, including improvements in response to the ‘Bathurst Harbour Landing Area Operational Report 2001’. These improvements have included an increase of the width at each end and work carried out by Peter and Barbara Willson to establish aprons to provide an aircraft parking area.

Aircraft use can cause noise and visual disturbance, potentially impacting both visitors and natural values, particularly orange-bellied parrots. Pilots of all types of aircraft are required to operate in a way that is consistent with the ‘Fly Neighbourly Advice’ guidelines ([http://www.parks.tas.gov.au/file.aspx?id=7090](http://www.parks.tas.gov.au/file.aspx?id=7090)) to minimise potential impacts.
The ‘Fly Neighbourly Advice’ designates ‘Sensitive Areas’ at Melaleuca where additional conditions apply to aircraft during the nesting season of the orange-bellied parrot.

Management situation

The Landing Area is an airstrip with a gravel surface that is 450 metres long and 45 metres wide. The Landing Area does not have lights. Wind direction indicators and runway markers are maintained by PWS.

The Landing Area is a private airstrip, as distinct from a licensed airport that must be available for conditional public use, such as Hobart International Airport (Airports Plus Pty Ltd 2001).

The Landing Area is owned and managed by PWS. Licensed commercial operators are authorised to land by PWS. Only with strict conditions may non-commercial private landings be authorised. Due to various management considerations, including visitor risk, PWS is not bound to accept any application to use the Landing Area.

Policy – use of the Bathurst Harbour Landing area

The application and administration of authorities to use the Landing Area will be consistent with the National Parks and Reserved Land Regulations 2009.

Use of the Landing Area by private pilots (non-commercial flights) may be authorised if specific requirements are met, based on the following considerations:

- It is the pilot’s responsibility to determine whether the aircraft is appropriate and able to safely undertake landings and take-offs at the Landing Area. Only VH registered aircraft are considered suitable. In addition, the pilot must ensure that the individual aircraft is designed, capable and loaded in such a way for it to safely undertake short-field landings and take-offs on the Landing Area based on the weather conditions at that time.
- The pilot must have written permission from the owner of the aircraft to use the Landing Area.
- The pilot must provide evidence that they have $10 million public liability insurance.
- The pilot must provide evidence of their pilot’s licence. Evidence of relevant qualifications or experience may also be provided.
- Pilots must follow the ‘Fly Neighbourly Advice’ guidelines to minimise potential detrimental impacts to natural values and visitors.

Helicopter landings

Helicopter landings at Melaleuca are irregular and reflect the need for helicopters to undertake remote PWS maintenance and management activities or for emergencies. Other types of helicopter landings are not generally permitted. Use is restricted because helicopters cause more noise and disturbance than light aircraft that follow more predictable flight paths. The main concern is related to the disturbance of orange-bellied parrots. However, helicopters may also detract from the experiences of visitors.

Helicopter landings require the approval of the Director. Commercial or private helicopter landings in the plan area are not generally permitted. To warrant consideration, proposals for commercial or private helicopter landings within the plan area must demonstrate the need for a helicopter, rather than a fixed-wing landing, and be able to have nil or minimal impact on other visitors and values.
To minimise the potential for disturbance of visitors and orange-bellied parrots, for biosecurity reasons and to avoid impacting the commercial operations of light aircraft, helicopter landings within the plan area should generally occur on an appropriate part of the Bathurst Harbour Landing Area or at Deep Water Landing (for the transfer of material and equipment). It is acknowledged that this is not generally practical for fire management operations.

**Landing Area alterations and maintenance**

PWS is responsible for the maintenance of the airstrip and associated requirements, such as the windsock.

A gravel stockpile that is used to maintain the airstrip surface is located within the Remote Area Management Site to the south of the airstrip.

A fee is collected from the licensed operators to assist with maintenance costs.

For the safe operation of aircraft that currently use the Landing Area, extensions of the existing Landing Area may be considered providing that the ends of the extension are at least 30 metres from both Moth and Melaleuca Creeks and it has the same alignment as the present Landing Area. This is based on a policy that was established under the TWWHA management plan in 1999. Adequate consideration of environmental and social impacts and maintenance requirements would be required for any proposals for airstrip extensions.

**Desired outcomes**

- The Landing Area and associated facilities are maintained to a standard that allows for the experienced pilots of licensed operators to land there.
- Pilots of all aircraft follow the ‘Fly Neighbourly Advice’ guidelines to minimise potential detrimental impacts to natural values and visitors.

**Management response**

- Continue to undertake maintenance activities and provide services required for the appropriate use of the Landing Area in its present form.
- Prepare more detailed policy guidance for the assessment and authorisation of private pilots to use the Landing Area.
- Continue to require helicopter landings to be approved and occur on an appropriate part of the Landing Area when practical.
- Continue to require helicopter pilots entering the area to follow hygiene protocols outlined in the ‘Keeping it Clean’ manual and explain biosecurity requirements to passengers.
- Continue to require pilots to follow the ‘Fly Neighbourly Advice’ guidelines to minimise impacts to natural values and visitors.
- As the stockpiled gravel is progressively used for the maintenance of the Landing Area, undertake actions such as ripping to facilitate natural rehabilitation of the stockpile area.
Boating access

Visitors utilise boats to access Melaleuca or undertake boat-based commercial activities. Motorised and non-motorised boating craft are used, including sea kayaks, dinghies and yachts. The size of boats able to access Melaleuca is limited to those that are able to navigate Melaleuca Inlet. Speed restrictions apply (5 knots) in the southern part of Melaleuca Inlet (from 43°24.496’S to Melaleuca Lagoon) to help prevent bank erosion. Vessel access to Melaleuca Lagoon and Moth Creek is restricted to PWS, residential lessees and other authorised vessels, due to the extremely dark shallow water and the numerous obstructions that are present (see ‘Management Zones’ for more information about the restricted access to Melaleuca Lagoon).

Most boat-based visitors with dinghies, or other vessels with drafts that can pass over the bar at the mouth of Melaleuca Creek, access Melaleuca using the public pontoon area on Melaleuca Creek. It consists of a jetty area plus a small pontoon that has been designed to accommodate four vessels, including the PWS boat. A jetty on Moth Creek is used by vessels that are authorised and able to navigate Melaleuca Lagoon.

Most wooden moorings on Melaleuca Inlet have been condemned and removed. One remaining wooden mooring, formerly part of a residential lease, is currently in an unsafe condition. Some heritage structures in the vicinity of this mooring site are listed as part of the Tasmanian Heritage Council site 10975.

Channel markers consisting of tea tree or Melaleuca piles capped in recent decades with yachtsmen’s empty beer cans are located along Melaleuca Inlet and in Melaleuca Lagoon. The markers assist vessels in navigating the often shallow water and are of some historical significance.

A public mooring facility is provided on the bank of Melaleuca Inlet at Deep Water Landing. It is a basic facility where up to four large yachts can tie up. Bolts have been installed for attaching ropes and large plastic piles act as fenders. It replaced the older structurally unsound public moorings that were located further upstream. Boat-based visitors using the public mooring at Deep Water Landing are not expected to cause significant impacts to the site and will be encouraged to use smaller vessels to access Melaleuca via the public pontoon on Melaleuca Creek, rather than walking.

Management situation

Melaleuca Inlet can sometimes be crowded, particularly when special events are held and there is a high demand for the public pontoon area. Storage of items in this area, such as kayaks and materials, contributes to further crowding and the visual impact of the facility.

Mooring space for large vessels is very limited. Additional mooring locations are available beyond the plan area.

Use of moorings and landings can cause environmental damage. Some non-robust or hardened places have become degraded, such as the area around the mouth of Melaleuca Creek. Erosion of the bank adjacent to the new public pontoon area on Melaleuca Creek may become an issue where there is concentrated use at the site. Other impacts include vegetation damage where boats have been tied to trees. As usage increases, impacts are likely to become more evident.

Stream bank erosion in Melaleuca Inlet has been caused by a combination of natural wind and wave action, vessel wave wake and sea-level rise. Melaleuca Inlet upstream of the 5 knot speed limit sign is considered to be one of the most susceptible areas to the erosive effects of vessel wave wake in the Port Davey area (see Bradbury 2011 for more...
The level of compliance with the 5-knot speed limit in Melaleuca Inlet is unknown, and there is a lack of PWS enforcement capability. This is a concern because faster speeds increase wake wave energy that can contribute to bank erosion.

The small jetty on Moth Creek is a basic facility that is primarily used for small boats. Visitors access the Moth Creek jetty area for swimming and to view the waterway. The track to Moth Creek jetty is uneven and may need to be improved if usage increases.

Deep Water Landing has been modified to be used as a public mooring, however the site should be monitored for significant impacts caused by this use. Use of Deep Water Landing as the primary mooring location for large vessels will eliminate the visibility of vessels from the main visitor area (the Visitor Services Zone, including the Needwonnee Walk). The mooring requires some modification to improve its functionality. See the ‘Operational facilities’ section for information about the route between Deep Water Landing and the Port Davey Track.

Other potential impacts related to boat use include the introduction of exotic species, fuel spills and other pollution of waterways.

**Desired outcomes**

- The key public boating facilities (the pontoon on Melaleuca Creek and the public mooring at Deep Water Landing) are generally sufficient for the number of boats that usually visit Melaleuca.
- Vessels do not have significant impacts on the waterways or other values.

**Management response**

- Continue to monitor for bank erosion, vegetation damage and pollution of the waterways associated with use of boats.
- Maintain the public pontoon area on Melaleuca Creek and the public mooring at Deep Water Landing and encourage use by boat-based visitors and commercial operators, as well as a management vessel.
- Remove the remaining wooden mooring on Melaleuca Inlet or undertake works to improve its condition.
- Manage the public pontoon area to ensure that it is not overcrowded by kayaks or other stored items.
- Continue access restrictions for vessels to Melaleuca Lagoon and beyond to Moth Creek, with the exception of vessels used by PWS and residential lessees.
- Encourage boat-based visitors to minimise wake impact, comply with regulations while using the waterways to avoid contributing to bank erosion and follow appropriate hygiene and biosecurity practices, including rodent control.
- Inform visitors with boats about the need for the 5-knot speed limit.
- Ensure that any unauthorised continued use of the old pontoon site on Melaleuca Creek does not hinder vegetation recovery on the bank and the old access track.
- Monitor use and impacts at Deep Water Landing associated with visitors using or congregating around the public mooring facility, including track access, vegetation damage and changes to that part of the Melaleuca Inlet bank. Harden a small site at Deep Water Landing if it is considered necessary.
• Install a sign on the bank at the Deep Water Landing public mooring facility to give visitors advice on its use.
• Seek feedback regarding the usability of Deep Water Landing as a public mooring facility and investigate ways to rectify issues.

Walking access

Foot access into the area is predominantly via the Port Davey Track from Scotts Peak and the South Coast Track from Cockle Creek. Walkers also fly in to Melaleuca to commence extended walks, including trips further west. Outside the VSZ, tracks are generally of a challenging nature and low standard.

There are a variety of access tracks within the VSZ. Most tracks are hardened gravel tracks and are generally of a high standard.

As the departure point for many walkers, Melaleuca presents an important location for providing interpretation that encourages walkers to follow the ‘Leave No Trace’ principles.

More information on the long-distance walks commencing from Melaleuca is included in the Melaleuca–Cox Bight Management Statement.

Management situation

Tracks often have localised ponding and muddy sections. Extensive flooding of tracks can occur during very wet conditions.

The start of the South Coast Track currently crosses the Landing Area and then utilises some of the vehicle tracks that are used to access the former mine area, before trending south-east out of the plan area. The need to cross the Landing Area presents a hazard to walkers. Prominent signage could more clearly identify the start of the South Coast Track on the southern side of the Landing Area and ensure that pedestrians choose a direct location to cross.

Walkers also cross the Landing Area at the end of the Port Davey Track. A new short link track to divert walkers around the western end of the Landing Area and connect to the raised track to the pontoon area has previously been marked out on the ground but has not been constructed.

To provide walkers with a safe way to access the South Coast Track (ie an alternative to crossing the Landing Area), a short track around the eastern end of the Landing Area was considered – either following the outside edge of the Landing Area and connecting with the existing Moth Creek crossing, or leading to a newer crossing of Moth Creek aligned with the end of the Landing Area. However, both options were considered problematic due to issues such as the need to raise the track sufficiently to be used during flooding; a new crossing point on Moth Creek would obstruct the navigable waterway; and a new crossing of sufficient height to allow vessels to pass and a raised track would be an avoidable incursion into the Wilderness Zone on the eastern side of Moth Creek. An alternative route could be considered if the removal of all Landing Area crossings by pedestrians is considered necessary in the future, such as a track parallel to the southern side of the Landing Area, however the potential impact on orange-bellied parrots, peat mounds and other significant values would need to be considered.
**Desired outcomes**

- Melaleuca is a hospitable base for walkers, providing a strong sense of arrival or departure for walking trips.
- Walkers do not need to cross the Landing Area to access the South Coast Track or the Port Davey Track.

**Management response**

- Ensure that key access tracks within the Visitor Services Zone are maintained to a standard that is suitable for the range of visitors that are likely to visit (at least Class 3 – AS 2156 Walking Tracks) and are consistent with the PWS Reserve Standards Framework category ‘Day Use Get Away (Mid)’.
- Ensure that prominent directional and hazard warning signs are installed on relevant tracks to advise walkers and other visitors about the safety hazards at the Landing Area and identify the start of the South Coast Track.
- Construct a short link track around the western end of the Landing Area to provide safe access to the Port Davey Track.

### 4.3 Day and overnight facilities

Day facilities provided at Melaleuca include tracks, boat facilities (mentioned above), interpretive installations and toilets. Accommodation facilities are provided for visitors who stay overnight at Melaleuca.

Two types of basic accommodation are currently provided at Melaleuca – two huts for bushwalkers and a nearby camping area. A commercial operator also offers accommodation at the Forest Lag Standing Camp which is located outside the Visitor Services Zone but is usually accessed via Melaleuca.

Over the years renovations and maintenance works have been undertaken on the huts by PWS staff and volunteers, including the closure of the stone fireplaces, removal of chimneys and re-roofing works.

The Melaleuca camping area is located in the tea tree forest just to the north of the PWS Staff Quarters and bushwalking huts. The huts cater for the bulk of the accommodation needs at Melaleuca and consequently the camping area generally receives only minimal overflow use. The unimproved camping site is well contained by taller vegetation, is relatively robust and shows minimal signs of degradation. The site is designated as a ‘fuel stove only’ area and there are no facilities provided for campers, other than the nearby toilet.

A toilet with two cubicles is located near the campground and bushwalking huts. The visitation levels and the capacity of the existing toilet mean that an additional toilet is required. The toilet could be constructed closer to the Landing Area to be more accessible for day visitors or people waiting for aircraft.
**Management situation**

Accommodation options at Melaleuca are basic and limited in capacity.

As noted in more detail in the ‘Commercial visitor services’ section, the potential for new tourism developments in the TWWHA is being considered as part of the review of the TWWHA management plan.

The appearance of the old stove and the closed fireplace in the Charles King Memorial Hut is poor. Some visitors leave rubbish in the closed fireplace area.

There is a lack of ventilation in both huts, as well as condensation issues when they are full. Interpretation in the huts requires updating to enhance the experience of visitors staying there.

Several informal walking routes have formed from the campground down to the water’s edge. There is some very minor trampling damage and erosion evident adjacent to the small beach on Melaleuca Lagoon.

The toilet and evaporation area are relatively visually obtrusive due to the locations and system requirements (ie access to sun). Options may include painting, installing screening material or planting appropriate vegetation.

Rubbish accumulation including unwanted food items and gear being left in the bushwalking huts is a minor issue at Melaleuca. PWS does not collect rubbish left by visitors or commercial operators.

While visitors are required to remove their unwanted stove fuel containers they nevertheless tend to accumulate in the huts. It is recognised that the removed of fuel containers by visitors is not possible if they are leaving by air, due to airline regulations. Discarded fuel containers are sometimes brought out by Par Avion on empty planes.

**Desired outcomes**

- Visitors have access to a range of basic day and overnight facilities in keeping with the traditional style of Melaleuca.
- Environmental impacts associated with day and overnight visitor use are minimal.

**Management response**

- Continue to provide hut accommodation for walkers and undertake appropriate maintenance activities on the huts. Any works must consider the heritage values and significance of the Charles King Memorial Hut.
- Improve the presentation and condition of the huts, particularly the closed fireplace in the Charles King Memorial Hut, and improve ventilation.
- Maintain the camping area at the current location.
- Continue the fuel-stove only policy.
• Regularly monitor for increased trampling, vegetation loss, campsite expansion and campfire use associated with the camping area, particularly along the edge of Melaleuca Lagoon.

• Identify ways to reduce the visual impact of the existing toilet facility without reducing its functionality.

• Construct a second toilet closer to the Landing Area. If practical, include as part of a structure to replace the Troedel Shelter.

• Continue to require all visitors to remove their own rubbish.

• Investigate options for the collection and disposal of empty fuel containers that are left by walkers.

4.4 Information and interpretation

The Visitor Services Zone is the primary location for presenting and interpreting the features of Melaleuca as well as the Outstanding Universal Values of the TWWHA.

The provision of information about Melaleuca and the TWWHA is critical to the delivery of quality experiences for visitors and to foster an appreciation of the area.

There are various directional and interpretive signs within the Visitor Services Zone. Signs should generally conform to the prescriptions of the PWS Outdoor Sign Manual 2008. Signs in the waterways also need to be easily seen and understood.

Interpretation installations in the Visitor Services Zone include the Needwonnee Walk and various interpretation panels. Off-site interpretation is provided in the Needwonnee and Port Davey Marine Reserve publications and DVDs.

The lessees (the Fenton, King and Willson families) provide occasional informal on-site interpretation on the history of the area for visitors, as well as off-site talks and exhibitions. The Friends of the Orange-bellied Parrot (Wildcare Inc.) volunteers provide opportunistic interpretation on the Orange-bellied Parrot Recovery Program and guide visitors to the bird hide. Fundraising events held by the Friends of Melaleuca (Wildcare Inc.), such as film nights, also contribute to the public knowledge and appreciation of Melaleuca.

There is an opportunity to provide visitors with improved information about values that are currently under-represented, such as the pioneer mining that occurred at Melaleuca and Cox Bight. PWS staff are not generally in attendance at Melaleuca and are therefore not available to provide face-to-face information to visitors. A volunteer caretaker program operates over summer to welcome and assist visitors.

Troedel shelter

The Troedel Shelter is the primary day visitor facility at Melaleuca and the first onsite interpretation that visitors arriving by aircraft encounter. Walker registration information is provided at the shelter, as well as some seating, limited storage and drinking water. It also acts as a staging area for walkers preparing for their trips and a sheltered area for visitors waiting for flights. An automatic weather station was installed on the shelter in 2012 by Par Avion.
**Former bird hide**

The octagonal Deny King Bird Observation Hide was built in the 1990s. It was once important for monitoring undertaken as part of the orange-bellied parrot monitoring and management program. However, the monitoring area has now been relocated to shift the focus of parrot activity away from disturbance sources within the Visitor Services Zone. The former bird hide contains dated information about natural values of the area from when it was used for visitor viewing of orange-bellied parrots and although now little used, it does provide shelter for visitors and a good location for interpretive displays.

**Needwonnee Walk**

The award-winning 1.2km Needwonnee Walk presents information about the values of the Tasmanian Aboriginal community to visitors. It was constructed in 2011 as a joint project between the Aboriginal community and PWS. The walk provides insight into the life of the Needwonnee people whose homelands extended from Port Davey to New River Lagoon. A variety of interpretive installations are located beside the purpose-built looped boardwalk, which passes through moorland, forest and Melaleuca Lagoon. The installations include a combination of traditional and contemporary works – some permanent, some ephemeral. The ephemeral installations are made from local natural materials that will ultimately return to the landscape. They include a traditional campsite, with dome-shaped hut, hearth fire and tools; woven baskets; a paper bark canoe; and fibre creation figures. One of the permanent installations is a tall row of rusted steel panels, depicting the Creation Story. A booklet and DVD were also produced as part of the project.

The loop walk provides a short walk opportunity, something that Melaleuca previously lacked. The durable recycled plastic mesh used for the track decking permits up to 70% light penetration to allow vegetation to grow beneath the walk, reducing its impact.

The project was the first partnership with the Aboriginal community to develop an interpretation product for the south-western part of the TWWHA. The project involved a total of 20 members of the Aboriginal community, who participated in a variety of ways, including track work and development of the interpretive installations, booklet and DVD. Significantly, while the initial project has concluded, the partnership between the Aboriginal community and PWS continues, with at least annual visits made by members of the Aboriginal community to refurbish the existing ephemeral installations and/or add new installations.

**Management situation**

The former bird hide provides an opportunity for the provision of a heritage museum for an enhanced visitor experience. Significant changes to interpretation should be guided by an interpretation plan that is developed in consultation with the Friends of Melaleuca (Wildcare Inc.), the Friends of the Orange-bellied Parrot (Wildcare Inc.) and other relevant stakeholders.

Often one of the reasons people visit Melaleuca is the opportunity to observe an orange-bellied parrot in the wild. The feeding table was formerly located at the bird hide but has been relocated to an area south of the airstrip which is less accessible for visitors.
Renewal of the ephemeral interpretive installations of the Needwonnee Walk requires continual involvement from the Aboriginal community.

Before they start their trip to Melaleuca, visitors are advised about the biosecurity and ‘Fuel Stove Only Area’ measures to help protect the area, as well as the need to consider potential impacts that the weather may have on their trip, such as aircraft flight delays or flooded rivers.

Interpretation and directional signage at the Troedel Shelter is dated. If practical, the replacement of the shelter would be of an improved design with seating and shelter space for visitors waiting for flights or preparing for walking trips, as well as interpretive and storage space. Adjusting the location of the shelter should be considered to improve the position of the shelter and visitor orientation.

Only ad hoc interpretation is provided in the two walkers huts. They are suitable sites for low key interpretation, including historical displays and information.

**Desired outcomes**

- Visitors can readily make their way around the site guided by clear and consistent signage.
- Visitors gain a real insight and understanding of the range of values, including Outstanding Universal Values, of Melaleuca, Cox Bight and the broader TWWHA.
- The Aboriginal community continues to be actively involved in the renewal of the interpretive installations of the Needwonnee Walk.
- Interpretation installations are improved, accurate and engaging and include presentation of pioneer mining heritage values and orange-bellied parrots.

**Management response**

- Review and update the 2002 ‘Melaleuca Interpretation Action Plan’. Aspects to consider include the development of the former bird hide into an interpretation centre that provides information about the pioneering mining history at Melaleuca and Cox Bight; increased profile of the world heritage status of the area and the Outstanding Universal Value of the TWWHA; the Orange-bellied Parrot Recovery Program (including the history of the program and Deny King’s involvement); and updated installations in the bushwalking huts.
- When signs are replaced, those that are recognised as having aesthetic values should not be altered unless the functionality or accuracy of the sign requires improvement to assist visitors.
- Liaise with Friends of Melaleuca (Wildcare Inc.) and the King family to investigate options for developing a heritage museum in the former Deny King Bird Observation Hide.
- Determine an appropriate site and options for visitors to view and learn about orange-bellied parrots without disturbing the birds.
- In partnership with the Tasmanian Aboriginal community through the Needwonnee Steering Group, undertake ongoing management of the Needwonnee Walk, particularly the renewal of the ephemeral interpretive installations.
- Encourage the development of ‘on demand’ guided tours by the Aboriginal community.
• Liaise with commercial operators visiting Melaleuca in relation to the provision of consistent and appropriate information and interpretive facilities for their guests.

• Ensure that pre-visit information continues to be available for visitors including information about biosecurity, ‘Fuel Stove Only Area’ measures and potential weather impacts on trip plans.

• Investigate options for the replacement of the Troedel shelter. The replacement structure should have better amenity, an adequate covered area and a larger sheltered seating area.

4.5 Visitor monitoring

Visitor monitoring, particularly the recording of visitation levels, can assist in understanding visitation trends and making management decisions. Being able to quantify changes in visitation levels is important for the understanding and management of the area and to facilitate the provision of the desired visitor experiences.

There is no comprehensive record of visitation to Melaleuca. Ongoing data is based on bushwalker registration books and the number of individuals that arrive at Melaleuca by air.

Short-term visitor surveys were conducted in 1993 and 2001, as well as smaller surveys undertaken by volunteer caretakers between December 2004 and March 2005. Visitor feedback specifically about the Needwonnee Walk was collected following the completion of the project.

Management situation

Collecting data is problematic due to the lack of a permanent PWS presence at Melaleuca, the varied ways in which visitors access the area and the reliance on commercial operators for the collection of some data. Consequently, visitor use patterns are poorly understood and feedback from visitors has not been systematically collected.

Undertaking face-to-face surveys or distributing questionnaires is time-consuming for PWS staff and commercial operators. The collection of email addresses to facilitate an online survey may be a more efficient option.

Desired outcome

• A visitor monitoring program has provided improved information about visitation levels and the experiences of visitors.

Management response

• Ensure that effective arrangements are in place for the continued collection and storage of useful visitor data, particularly visitation levels.

• Continue to maintain and collect data from the bushwalker registration book at the Troedel Shelter.

• Instigate a visitor survey to follow on from the survey undertaken in 2001.
4.6 New developments

As outlined earlier in this plan, the public structures and other facilities that are provided for visitors at Melaleuca have been incrementally developed over time, including facilities for boats and interpretation sites (e.g., the Needwonnee Walk). Some structures, such as the toilet, are particularly visible. In some cases, existing infrastructure and disturbed areas could be reutilised.

It is possible that new developments at various scales will be proposed for Melaleuca during the life of this plan. Developments should: be in accordance with the TWWHA management objectives and this plan’s desired outcomes for the site; consider that the area is a gateway to the TWWHA; and be consistent with the Tasmanian Reserve Management Code of Practice 2003.

**Desired outcomes**

- The potential impacts of any proposed new structures or facilities have been considered as part of the assessment process, particularly in relation to orange-bellied parrots.
- New developments complement existing facilities and are designed in consideration of the landscape and visual impact.

**Management response**

- Assess proposals for new developments for consistency with zoning and potential impacts on the values of the area, particularly orange-bellied parrots.
- Where possible, developments should utilise existing disturbed areas and infrastructure.
- New facilities should be low-key and unobtrusive to minimise visual impacts on the remote setting and the landscape, unless there is a functional reason for the siting of particular structures, such as toilet operation.

4.7 Commercial visitor services

Commercial visitor services refer to those operations that provide a commercial visitor experience within areas managed by PWS. Commercial operations that use Melaleuca as a point of access include guided tours (e.g., sea kayaking, bushwalking, and cruise boat tours), scenic flights, and special events. Given the nature of the site, discreet low-intensity water-based or land-based commercial activities with low levels of impacts are generally preferred.

The majority of visitors access and experience Melaleuca and the surrounding area through Par Avion, as well as other commercial operators. Commercial operators are therefore well placed to provide face-to-face interpretation to visitors.

**Management situation**

All commercial operators are required to obtain a lease or licence and are to operate within the guidelines of relevant management plans and policies.
There is a lack of a formalised storage area for equipment used by commercial operators, particularly fuel that is sold at Melaleuca for cooking purposes due to flying restrictions.

This site plan does not propose major changes to the nature and level of existing tourist and recreational use of the area. However, the potential for new tourism developments in the TWVHA is being considered as part of the review of the TWVHA management plan which may make provision for increased levels of tourism development at Melaleuca.

**Desired outcome**

- Melaleuca continues to be a place where commercial operators provide specialised and discreet low-intensity activities for visitors that are compatible with the other uses and values of the area.

**Management response**

- Investigate storage options for commercial operators.
- All commercial operators will continue to be required to remove all waste generated by their operations.
- Where practical, provide information briefings and interpretive training for guides and pilots.

### 4.8 Operational facilities

**Staff management base and storage**

No PWS staff are permanently based at Melaleuca. The Staff Quarters is used extensively over the summer and, in addition to visiting PWS staff, it accommodates scientists, researchers, volunteers and temporary track workers. The building was built in the late 1980s and has two rooms for sleeping and a communal room for cooking with an adjoining small storage room. The main management storage area and a slipway are located underneath and behind the building.

**Management situation**

The location of the Staff Quarters amongst the campground and bushwalking hut area can cause unnecessary disturbance to visitors and a lack of privacy for staff. The accommodation is often at capacity in the busy summer months with volunteers and staff, communal space becomes crowded and there is a lack of alternative accommodation when visitors have filled the bushwalking huts. The location and capacity of the management facilities is particularly problematic. The location of the workshop under the building is unsuitable due to the limited space and for access and safety reasons. Boat launching is restricted to high tide and is another limitation of the site.

It is proposed that a new operational management base is established in the Remote Area Management Site to the south of the airstrip (see Map 3). The location, layout and any construction of new facilities requires careful consideration to minimise potential impacts, particularly due to its proximity to some sites used as part of the Orange-bellied Parrot Recovery Program. It is a previously disturbed site that could be appropriately screened visually and aurally from the Visitor Services Zone. However it is also part of Deny King’s
old mine area that is entered in the Tasmanian Heritage Register and therefore any new facilities should not impinge on the associated heritage values, such as the old separating plant, amenities shed, ponds and dams. Existing features may be suitable for reuse, such as the concrete slab adjacent to the King’s Loader shed. Some items are already being stored there.

There is no consolidated storage area at Melaleuca, with many items stored at various sites in the area. Some items are stored in Deny King’s historic sheds (part of the heritage site). Structures of heritage significance should only be used for storage if it will not have a detrimental impact on the heritage values. Structures must be structurally sound and the use consistent with any heritage values that may be present.

**Desired outcomes**

- The storage of materials and equipment does not have a visual impact on the experiences of visitors to the site.
- Materials and equipment are protected from deterioration.
- Operational facilities are more suitable for management purposes and the location is compatible with other uses.

**Management response**

- Establish pertinent operational facilities in the Remote Area Management Site south of the Landing Area, such as a workshop and storage area. Consider orange-bellied parrot and heritage values.
- Improve storage facilities for PWS operational use to maintain the condition of and reduce the visual impact of items.
- Continue to use existing structures for storage or other appropriate purposes, if practical, in keeping with the Melaleuca tradition of the re-use of materials.
- The use of structures for storage purposes should be discussed with PWS to ensure that they are used appropriately.
- If necessary provide additional staff accommodation, either as an extension to an existing building or a separate structure.

**Deep Water Landing**

Deep Water Landing is located on the western bank of Melaleuca Inlet, approximately 1km north-west of Melaleuca. The site has been used to unload goods transported to the area by boat for a long time. Deep Water Landing is accessed either by boat along Melaleuca Inlet, by foot from the Port Davey Track or by helicopter. The route that branches off from the Port Davey Track was used to move machinery as part of mining activities. Items unloaded at Deep Water Landing are generally transferred to the Bathurst Harbour Landing Area by helicopter or to Melaleuca Creek and Moth Creek on smaller boats.
Deep Water Landing is also used as a public mooring facility. See the ‘Boating access’ section for information about this use.

**Management situation**

Deep Water Landing is the only place at Melaleuca suitable for the loading/unloading of heavy machinery or other bulky items from larger boats. Helicopters are often used to transfer materials to/from Deep Water Landing.

Although it is overgrown, the route between Deep Water Landing and the Port Davey Track is still used to transfer large machinery on an infrequent basis and should therefore not be obstructed. Deep Water Landing has been used as a storage area for various materials. Structures located there include the base of an incomplete fuel bund (all bulk fuel is stored in bunded containers alongside the Landing Area). It is not a suitable site for fuel storage or to stockpile hazardous materials due to the potential contamination risks to the waterway, the visual impact and other potential environmental impacts. Items stored at Deep Water Landing should not pose a hazard to visitors using the public mooring facility there.

Part of the Deep Water Landing area is clearly visible from Melaleuca Inlet and detracts from the otherwise natural landscape character of the waterway.

**Desired outcome**

- Deep Water Landing continues to be used as a facility to access and unload large vessels. It is only used as a temporary storage area and existing items that are no longer required have been removed.

**Management response**

- Remove all stored materials and structures no longer required.
- Ensure that any materials stored at Deep Water Landing cause minimal visual impacts to boat-based visitors on Melaleuca Inlet and are not a hazard for visitors using the public mooring facility at Deep Water Landing.
- Deep Water Landing should only be used as a temporary short-term storage area.
- The route to Deep Water Landing will be monitored and it will not be developed into a hardened track unless the level of use or the condition of the route warrants it.
- The route to Deep Water Landing should not be obstructed because it may continue to be used on an infrequent basis for management purposes if no long-term damage is caused and the creek crossings are useable. The preferred alternative is that equipment or materials are transferred by helicopter between Deep Water Landing and the Landing Area, or by smaller boats between Deep Water Landing and Melaleuca and Moth Creeks.
- The transfer of materials by helicopter to and from Deep Water Landing should be scheduled to minimise potential disturbance of orange-bellied parrots.
- Public use of Deep Water Landing is limited to the use of the public mooring facility to moor vessels.
The use of Deep Water Landing by commercial operators for the infrequent delivery or collections of equipment or materials is subject to authorisation by PWS.

4.9 Residential leases

A residential lease has been held by the descendants of Deny King since 1991, following the relinquishment of his mining lease. The lessees conduct valuable maintenance within the lease and surrounding area, including on items and structures listed as part of the Tasmanian Heritage Council’s registered site 10975. The lease agreement is “central to the maintenance of the heritage values of the place since it preserves the associational values that, in large measure, define the place... the family, therefore, is best placed – and has the capacity (through its association with the Friends of Melaleuca (Wildcare Inc.)) – to continue the care and maintenance of the complex” (Parham and Terry 2010). Works on the lease area are guided by a work plan that is established in consultation with PWS.

Following the relinquishment of the Rallinga mining lease in 2011, a residential lease over a reduced area around the house was issued to Barbara Willson for continued occupation. Barbara Willson is actively involved in conservation programs at Melaleuca, particularly the monitoring activities of the orange-bellied parrot monitoring and management program.

Management situation

Both residential leases were issued by PWS and provide guidelines about how the leased areas are managed.

Some activities undertaken within the leases, such as the use of generators, may cause impacts such as the localised hydrocarbon contamination of soils.

Vehicular tracks are used to access the residential leases.

Desired outcome

- Residential lease occupation has not caused significant environmental impacts and has maintained the heritage values of the place.

Management response

- Ensure that adequate measures are in place to avoid environmental impacts associated with the occupation of the residential leases.
- Keep vehicular tracks open that are used to access the residential leases.

4.10 Community and volunteers

Dedicated Wildcare Inc. volunteers have been working for many decades to improve the conservation outcomes of the reserve and maintain heritage values. Friends of the Orange-bellied Parrot (Wildcare Inc.) volunteers are an integral part of the orange-bellied parrot monitoring and management program. Members of the Friends of Melaleuca...
(Wildcare Inc.) regularly visit the plan area to undertake practical projects involving
general maintenance work on heritage-listed buildings and other PWS assets. Many
members have a long-standing connection with and knowledge of the area. The remote
nature of the site limits the number of volunteers able to access the site and also
increases the difficulty and cost of working there.

Volunteers are also involved in the Melaleuca Volunteer Caretaker Program. They
provide a PWS presence at Melaleuca during summer, assist visitors and undertake
maintenance and other tasks.

**Management situation**

Volunteers make valuable contributions at Melaleuca. Their continued involvement
sustains a community connection to the area.

**Desired outcome**

- Volunteers continue to make valuable contributions to conservation programs and
  the management of Melaleuca and gain satisfaction and enjoyment from their
  involvement.

**Management response**

- Continue to liaise with volunteer groups to develop approved work plans.
- Provide support and assistance to volunteer groups.
5. Rehabilitation of Rallinga Mine area

5.1 Background information

Rallinga Mine is the most recently active mining lease in the region and was used for the small-scale mining of alluvial tin deposits, and associated residential use. The lease boundaries and conditions were altered several times during the operation of the mine by Mr Peter Willson and Mrs Barbara Willson from 1974. The last lease amendment occurred in 2002 which reduced the lease from 175 hectares to 128 hectares. The lease had not been actively mined for several years prior to it being surrendered in 2011, leaving approximately 0.3 hectares requiring rehabilitation. A residential lease is retained by Barbara Willson.

Rehabilitation of the former Rallinga Mine site following cessation of mining is being undertaken by PWS with funding provided through the Australian Government’s Caring for Our Country program.

It was determined by heritage specialists that the smelter and processing plant areas should be retained due to their originality and immediate association with mining operations at Melaleuca. As these features contain many hazards, public access may need to be controlled and safety information provided to potential visitors. A small section of the Rallinga lease site (north-east corner) is part of the area registered by the Tasmanian Heritage Council (THR 10975) as ‘Melaleuca Historic Tin Mining Area’ (see Map 2). Works undertaken include the removal of contaminated soil and accumulated materials not associated with the heritage values.

Three sites (or part thereof) listed on the Tasmanian Geoconservation Database (TGD) are located within the Rallinga mine area: Western Tasmanian Blanket Bogs, Melaleuca Peat Mounds and Melaleuca Fossil Flora. Areas of blanket bog and some peat mounds have been disturbed by past tin mining practices. All rehabilitation work has and will continue to occur on disturbed areas and therefore further degradation of the geoconservation values will not occur. A number of fossils have previously been found within the mine workings and there is potential for additional fossils to be found during the rehabilitation project.

Technical assessments of the Rallinga Mine site and rehabilitation options were undertaken by GHD Pty Ltd. The first report evaluated the former mine site and provided a preliminary assessment of a potential rehabilitation project. A more detailed report was commissioned in 2012 to assess the contamination levels of the site and make recommendations about the remediation and management of the contaminated areas (‘Report for Rallinga Tin Mine Environmental Site Assessment – May 2012’). GHD engineers undertook sub-surface sampling as part of their investigation to determine the extent of contamination. Further advice was provided by the Environment Protection Authority Tasmania (EPA).

Refer to Map 4 for the location of key features and rehabilitation activities referred to in this plan.
5.2 Rehabilitation considerations

The aim of the rehabilitation activities is to achieve the following outcomes:

- Hazardous materials and contaminated soils are removed.
- There is no discernible erosion of treated sites or release of contaminants into the environment.
- Identified historic heritage values are retained and managed in accordance with the level of significance.
- Relevant parts of the site are suitable for visitors to access with appropriate directions and warnings.

The highest priority tasks are:

- The removal of hazardous fuels, chemicals and oils (completed).
- The removal of hazardous materials including excess batteries, empty drums, old tyres and refrigerators (completed).
- The removal of non-biodegradable items, such as PVC and rubber piping (completed).
- The collection of metal objects to a single location to allow for in situ decay over time (completed) – some items may be salvaged for other purposes such as museum displays.
- The removal of old machinery (completed).
- The removal of contaminated soils from inside sheds, followed by the demolition of most sheds (completed).

A number of constraints apply, including:

- The presence and sensitivity of orange-bellied parrots during the summer months.
- The known or potential presence of weeds and diseases that may spread within or beyond the rehabilitation area, such as clover, Phytophthora and chytrid.
- OHS hazards, particularly related to the movement of hydrocarbons and other chemicals.
- The volume of material for disposal, as well as the problematic transportation via helicopter and barge.
- The potential for inclement weather to affect transport or works occurring on-ground, particularly if works are not undertaken during summer.
- The availability of crucial items to complete tasks, such as a barge and helicopters.

5.3 Rehabilitation activities

Contaminated soil and waste

The most recent mine workings are located in the vicinity of the processing plant and the Willsons’ house. This area has the least regrowth. Other than the house, the most substantial structures at the site originally were the smelter and processing plant areas, as well as various sheds, some of which have now been demolished. Most sheds were used to store machinery and had unsealed floors and therefore hydrocarbon contamination was present. Two nissen-style sheds located in the north-east corner of the former lease area were part of Deny King’s mining operations and also had hydrocarbon contaminated soil. The remaining sheds have concrete floors which have inhibited hydrocarbon ingress.
Contaminated soil and hazardous waste was removed from the mine area during the early stages of the rehabilitation works because it was a high priority to reduce the potential for ongoing pollution. Approximately 25 cubic metres of contaminated soil has been removed. The collected waste was packaged in sealed containers and large bags and stored until a barge became available to transport it to a disposal facility in Hobart in October 2013.

Localised drainage had spread some hydrocarbons within a confined area in the immediate vicinity of some sheds. Sub-surface soil sampling determined that in most locations the hydrocarbon staining and odours was limited to the overlying gravels and therefore was likely to be the result of incremental spillage of diesel and oils used for engines and generators. Despite the high rainfall and high water table at Melaleuca, saturated peats and numerous connected water bodies, hydrocarbon contamination is not considered to have degraded surface water quality or affected Moth Creek which lies immediately down-gradient from where the main mining activities occurred (GHD 2012).

Other hazardous material that has been removed from the site includes gas and oxygen bottles, leaking batteries, paints and other miscellaneous chemicals and machinery containing or leaking hydrocarbons. Of concern were many containers that were fragile or broken, including battery cases.

The clean-up methods for the non-hazardous waste varied based on its type. Metal items were transferred to a single location within the former mine area where they will decay over time. Rubber and plastic items and other less degradable items were collected and removed along with more hazardous items.

Earth works

The condition of the former mine workings varies. Large areas of ground were disturbed during the operation of the Rallinga mine, however some of the visible former mine workings were caused by the previous miners in the area. The disturbances can be generally classified as one of the following:

- constructed dams, water bodies and associated drains/canals;
- exposed quartzite gravels that are now partly re-vegetated (old mine workings);
- partly rehabilitated areas of parallel strip mining; and
- various tracks.

Most areas were progressively rehabilitated by the Willsons and are now revegetated to some degree. Some of these areas are quite visible due to the linear formations that are still present. The rehabilitation has resulted in good vegetation cover, albeit of a different more shrub-dominated type from the surrounding western lowland sedgeland (dominated by buttongrass moorland), largely due to drainage changes. To go back to these areas and re-shape the already rehabilitated areas would be very costly, problematic to access and, while potentially removing some of the linear look of the mine site from the air, it would take many years to again grow back to the current level of revegetation and be a visual impact in the interim.

A number of areas have little or no vegetation cover and the exposed quartzite gravels of the various tracks and eroded areas are the most visually evident features. Constructed
water bodies remain but are known to now provide important habitat values, particularly for frogs. As noted earlier, hydrocarbon contamination is considered to have been limited to the shed sites and is therefore unlikely to have detrimentally affected the ecological integrity of the wider area, including groundwater.

Other than the removal of contaminated soil already undertaken, only minor further earthworks will be undertaken as part of the rehabilitation project. It will predominantly consist of works to ensure that areas where sheds have been removed have suitable drainage and surfaces are appropriate to allow for natural revegetation. The surfaces of large bare areas, particularly surplus tracks, will also be progressively ripped and spread with peat to facilitate natural revegetation. The scale of works required to transform the majority of the revegetated areas back to a condition similar to that existing prior to mining is not considered practical or warranted. There is also a high likelihood that important conservation values would be disturbed through extensive landform remodelling.

The canal associated with the New Harbour Tin Development Company’s mine workings is part of the listed site on the Tasmanian Heritage Register and will not be disturbed.

**Desired outcomes**

- Hazardous materials and contaminated soils have been removed.
- Rallina Mine historic heritage features can be safely accessed by visitors.
- Bare ground in the former Rallina Mine is regenerating naturally.
- A stable drainage pattern is established and erosion is minimised where rehabilitation works occur.
- Significant natural values such as orange-bellied parrots have not been negatively impacted by the rehabilitation activities.

**Management response**

**General approach**

- Remove contaminated soil and hazardous waste *(completed).*
- Remove buildings that are no longer required *(completed).*
- Transport to Hobart for disposal contaminated soil (approximately 25 cubic metres) and other waste stored at Deep Water Landing *(completed).*
- Manage public safety and provide low-key interpretation of the former Rallina Mine smelter and associated structures by provision of appropriate signage.

**Historic heritage**

- Retain the processing plant, smelter and two nissen sheds identified as being of heritage significance (the nissen sheds are part of the ‘Melaleuca Historic Tin Mining Area’ site on the Tasmanian Heritage Register).
- Retain the processing plant of the former Rallina Mine and manage it as a ruin (ie minimal stabilisation works to be undertaken).
- Conserve the smelter and associated structures for heritage values.
- Photograph core components of the mine site before work commences *(completed).*
Removal of materials

- Remove material that is a pollution and/or safety hazard, including batteries, fuels and chemicals (completed).
- Due to the fragile nature of many containers, remove liquids to new containers and transport old containers in Hazspill containers (completed).
- Relocate redundant machinery will be relocated to Deep Water landing during the dry summer months ready for transport by barge to Hobart (completed).
- Bag contaminated soil at the mine site, to be flown to the barge during the dry summer months after the departure of orange-bellied parrots (completed).
- Remove the numerous non-heritage items that have been stored in the two nissen sheds which are included in the Heritage Council’s listing. Some of the items are hazardous and/or inflammable materials (completed).

Earth works – rehabilitation

- Undertake surface works on sites where sheds are removed to facilitate natural recovery of vegetation. Facilitate recovery by ensuring sufficient drainage and improving the surface by spreading slash or peat (completed).
- Do not disturb areas where vegetation has re-grown, unless it is considered practicable to improve the morphology of the affected areas (eg potentially some of the highly visible linear features of the strip mined areas, however it is likely that the vegetation will eventually grow together and reduce the visibility of the linear features) and it is possible to access or modify them in a reasonable timeframe without significantly impacting other values.
- Limited active revegetation works, direct seeding or laying of peat or slash may be considered where natural revegetation has not occurred.
- Ensure that drainage in areas where rehabilitation works have occurred is adequate to avoid erosion.
6. Monitoring and evaluation

This plan provides direction for improving the environmental condition and the provision of facilities and services at Melaleuca. The purpose of this plan is to direct improvements in how the area is managed, used and enjoyed.

PWS is committed to a system of adaptive management (PWS 2010). Preparing a plan is just one step in a cyclic process of reserve management. The system is intended to be simple and flexible and focused on achieving results.

Monitoring and evaluation are important parts of management implementation.

The stating of clear, measurable performance indicators against a range of important Key Desired Outcomes is a critical step in this process. It also provides the community and partners in implementation with a means of holding PWS to account.

Key Desired Outcomes

Not all Desired Outcomes of this plan will be undertaken to ascertain management effectiveness due to a limited allocation of resources to undertake the required monitoring actions. The following Key Desired Outcomes have been selected from this plan as the focus of monitoring:

- The Tasmanian Aboriginal community has been involved in the identification, conservation and monitoring of Aboriginal heritage values at Melaleuca.
- The foraging habitat of the orange-bellied parrot is enhanced through ecological burning.
- Interpretation installations are improved, accurate and engaging and include presentation of pioneer mining heritage values and orange-bellied parrots.
- Hazardous materials and contaminated soils have been removed.
- Rallinga Mine historic heritage features can be safely accessed by visitors.

The Key Desired Outcomes are detailed in Appendix 1.

Review

This plan is to have an interim evaluation after five years. This evaluation will check the performance indicators by collating relevant data, reviewing progress and making recommendations as appropriate for any adjustments in management.

The plan is intended to apply for a ten-year period at the end of which there is to be a review of its effectiveness and the currency of its objectives and vision.
Management response

- Undertake an interim evaluation of the management plan after five years and a full evaluation after ten years.
- Implement the monitoring actions as described in the operational document ‘Key desired outcomes’ to enable the assessment of management effectiveness in achieving the key desired outcomes.
7. Information sources


## 8. Appendices

### Appendix 1 – Key desired outcomes, indicators and effectiveness monitoring

<table>
<thead>
<tr>
<th>Outcome 1</th>
<th>The Tasmanian Aboriginal community is involved in the identification, conservation and monitoring of Aboriginal heritage values at Melaleuca</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator</td>
<td>The level of Aboriginal community involvement in the identification, conservation and monitoring.</td>
</tr>
<tr>
<td>Monitoring actions</td>
<td>Record community involvement.</td>
</tr>
<tr>
<td>Great result</td>
<td>The community has been involved in the identification, conservation and monitoring of Aboriginal heritage values.</td>
</tr>
<tr>
<td>Acceptable result</td>
<td>The community has been involved in the identification, conservation and monitoring of Aboriginal heritage values.</td>
</tr>
<tr>
<td>Unacceptable result</td>
<td>The community has not been involved in the identification, conservation and monitoring of Aboriginal heritage values.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Outcome 2</th>
<th>The foraging habitat of the orange-bellied parrot is enhanced through ecological burning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator</td>
<td>Number and extent of ecological burning that has been undertaken.</td>
</tr>
<tr>
<td>Monitoring actions</td>
<td>Record extent and other characteristics of ecological burning.</td>
</tr>
<tr>
<td>Great result</td>
<td>Ecological burning has been undertaken with outcomes consistent with planned objectives and enhancement of foraging habitat.</td>
</tr>
<tr>
<td>Acceptable result</td>
<td>Some ecological burning has been undertaken.</td>
</tr>
<tr>
<td>Unacceptable result</td>
<td>Ecological burning has not been undertaken.</td>
</tr>
<tr>
<td><strong>Outcome 3</strong></td>
<td><strong>Interpretation installations are improved, accurate and engaging and include presentation of pioneer mining heritage values and orange-bellied parrots</strong></td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Indicator</td>
<td>The interpretation of significant values.</td>
</tr>
<tr>
<td>Monitoring actions</td>
<td>Record new interpretation installations.</td>
</tr>
<tr>
<td>Great result</td>
<td>All significant values of Melaleuca are interpreted in some way at Melaleuca and an integrated interpretation plan has been implemented.</td>
</tr>
<tr>
<td>Acceptable result</td>
<td>Most significant values of Melaleuca are interpreted in some way at Melaleuca and an integrated interpretation plan has been developed.</td>
</tr>
<tr>
<td>Unacceptable result</td>
<td>Interpretation installations have not been improved.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Outcome 4</strong></th>
<th><strong>Hazardous materials and contaminated soils have been removed</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator</td>
<td>Removal of hazardous materials and contaminated soils.</td>
</tr>
<tr>
<td>Monitoring actions</td>
<td>Undertake an inventory of hazardous materials and contaminated soils.</td>
</tr>
<tr>
<td>Great result</td>
<td>All hazardous materials and contaminated soils have been removed.</td>
</tr>
<tr>
<td>Acceptable result</td>
<td>As much hazardous material and contaminated soil has been removed as is practicable.</td>
</tr>
<tr>
<td>Unacceptable result</td>
<td>Hazardous materials have not been removed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Outcome 5</strong></th>
<th><strong>Rallinga Mine historic heritage features can be safely accessed by visitors</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicator</td>
<td>Public safety has been managed through low-key interpretation and the provision of appropriate hazard and directional signage.</td>
</tr>
<tr>
<td>Monitoring actions</td>
<td>Record signs.</td>
</tr>
<tr>
<td>Great result</td>
<td>The values of historic heritage features are explained on interpretive signs. Hazard signage is located in appropriate locations. Preferred access routes are identified by directional signage.</td>
</tr>
<tr>
<td>Acceptable result</td>
<td>The values of historic heritage features are explained on interpretive signs. Hazard signage is located in appropriate locations.</td>
</tr>
<tr>
<td>Unacceptable result</td>
<td>Signs have not been installed.</td>
</tr>
</tbody>
</table>
## Appendix 2 – Implementation plan

The following table shows the prioritised management responses from this plan. The priorities may change over time and will be periodically reviewed.

Implementation priorities: VH: <1 year; H: 2–3 years; M: 4–5 years; L: >5 years

<table>
<thead>
<tr>
<th>MANAGEMENT RESPONSE</th>
<th>PRIORITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2.2 Landscape values</strong></td>
<td></td>
</tr>
<tr>
<td>Where practical, minimise the visual intrusiveness of infrastructure through sensitive siting and appropriate design.</td>
<td>ongoing</td>
</tr>
<tr>
<td><strong>2.3 Geoheritage values</strong></td>
<td></td>
</tr>
<tr>
<td>Follow applicable burning prescriptions for buttongrass moorland to avoid degrading organosols, peat and bog features through planned burns.</td>
<td>ongoing</td>
</tr>
<tr>
<td>Monitor impacts on geodiversity and earth processes caused by potential influences such as planned burn regimes and recreation activities.</td>
<td>M</td>
</tr>
<tr>
<td>Liaise with the Geoconservation Management Section regarding research about the potential impacts of different burning regimes.</td>
<td>L</td>
</tr>
<tr>
<td><strong>2.4 Flora and fauna values</strong></td>
<td></td>
</tr>
<tr>
<td>Support and facilitate surveys, monitoring and research of rare or threatened plants and animals and their habitats.</td>
<td>M</td>
</tr>
<tr>
<td>Retain natural and artificial water bodies as habitat for frogs.</td>
<td>H</td>
</tr>
<tr>
<td>Monitor the status of the Tasmanian tree frog and chytrid fungus.</td>
<td>M</td>
</tr>
<tr>
<td><strong>2.5 Aboriginal heritage values</strong></td>
<td></td>
</tr>
<tr>
<td>In collaboration with the Tasmanian Aboriginal community conduct surveys to identify Aboriginal heritage values at Melaleuca.</td>
<td>H</td>
</tr>
<tr>
<td>In partnership with the Tasmanian Aboriginal community, ensure that values are recorded, threats are understood and appropriate management and monitoring occurs for sites where Aboriginal heritage values have been identified.</td>
<td>H</td>
</tr>
<tr>
<td><strong>2.6 Historic heritage values</strong></td>
<td></td>
</tr>
<tr>
<td>Continue to work with and support the Friends of Melaleuca (Wildcare Inc.) volunteers to maintain heritage values. Maintenance activities should be approved by PWS and relevant work should be consistent with the conservation policies and recommendations of the ‘Draft Melaleuca Conservation Management Plan’.</td>
<td>ongoing</td>
</tr>
<tr>
<td>Document heritage values associated with the former Rallinga Mine so that there is a complete record and information that can be used to inform management decisions.</td>
<td>H</td>
</tr>
<tr>
<td>Prepare a Conservation Management Plan for the heritage values associated with the former Rallinga Mine when additional resources become available.</td>
<td>L</td>
</tr>
<tr>
<td><strong>3.1 Diseases, introduced species and biosecurity</strong></td>
<td></td>
</tr>
<tr>
<td>Encourage visitors to keep to designated paths and follow basic hygiene practices to reduce the spread of Phytophthora beyond currently infected areas.</td>
<td>M</td>
</tr>
<tr>
<td>Provide pre-visit biosecurity information to visitors about the need for hygiene measures and appropriate equipment management to reduce the risk of diseases or invasive species being introduced to the plan area or spread to other locations.</td>
<td>H</td>
</tr>
<tr>
<td>Continue to monitor for the presence of chytrid fungus and the health of at-risk frog species.</td>
<td>M</td>
</tr>
<tr>
<td>Ensure visitors and staff follow hygiene measures for all gear and equipment to reduce the movement of water and soil to or within the plan area to minimise the likelihood</td>
<td>H</td>
</tr>
</tbody>
</table>
of the introduction of chytrid fungus and other pathogens and weeds.

<table>
<thead>
<tr>
<th>Action</th>
<th>Level of Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitor for exotic plants that may spread from the gardens within the</td>
<td>L</td>
</tr>
<tr>
<td>residential lease or Rallinga mine areas, especially if they could</td>
<td></td>
</tr>
<tr>
<td>cause weed issues in the national park.</td>
<td></td>
</tr>
<tr>
<td>Enhance visitor awareness of biosecurity risks at Melaleuca, such as</td>
<td>M</td>
</tr>
<tr>
<td>the establishment of a Chytrid Exclusion Area and associated</td>
<td></td>
</tr>
<tr>
<td>biosecurity guidelines for visitors, interpretive signage and other</td>
<td></td>
</tr>
<tr>
<td>information.</td>
<td></td>
</tr>
<tr>
<td>Continue to record any sightings of introduced species in the plan</td>
<td>L</td>
</tr>
<tr>
<td>area.</td>
<td></td>
</tr>
<tr>
<td>Undertake a monitoring program each year for the detection of</td>
<td>H</td>
</tr>
<tr>
<td>introduced rodents.</td>
<td></td>
</tr>
<tr>
<td>Where practical and warranted, undertake control or eradication</td>
<td>M</td>
</tr>
<tr>
<td>programs for introduced species to protect orange-bellied parrots and</td>
<td></td>
</tr>
<tr>
<td>other vulnerable values.</td>
<td></td>
</tr>
<tr>
<td>Take immediate action to eliminate any outbreaks of introduced</td>
<td>H</td>
</tr>
<tr>
<td>rodents or other significant introduced species that pose a threat.</td>
<td></td>
</tr>
</tbody>
</table>

### 3.2 Research and conservation programs

<table>
<thead>
<tr>
<th>Action</th>
<th>Level of Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue to support the activities of the Orange-bellied Parrot</td>
<td></td>
</tr>
<tr>
<td>Recovery Program at Melaleuca. All activities should be consistent</td>
<td>ongoing</td>
</tr>
<tr>
<td>with the National Recovery Plan and be endorsed by relevant</td>
<td></td>
</tr>
<tr>
<td>specialists and PWS.</td>
<td></td>
</tr>
<tr>
<td>Continue to require aircraft operators to follow the relevant ‘Fly</td>
<td>ongoing</td>
</tr>
<tr>
<td>Neighbourly Advice’ to minimise potential disturbance levels.</td>
<td></td>
</tr>
<tr>
<td>If considered necessary, consider management strategies to ensure</td>
<td>L</td>
</tr>
<tr>
<td>that bird observers and other visitors do not adversely affect</td>
<td></td>
</tr>
<tr>
<td>orange-bellied parrots. Management strategies should be developed</td>
<td></td>
</tr>
<tr>
<td>in consultation with the Orange-bellied Parrot Recovery Program.</td>
<td></td>
</tr>
<tr>
<td>Avoid undertaking activities during the orange-bellied parrot</td>
<td>ongoing</td>
</tr>
<tr>
<td>breeding season that are likely to cause high levels of</td>
<td></td>
</tr>
<tr>
<td>disturbance, such as repeated helicopter use. It is important that</td>
<td></td>
</tr>
<tr>
<td>specialist advice is sought to ensure that development and other</td>
<td></td>
</tr>
<tr>
<td>on-ground activities do not adversely affect the species.</td>
<td></td>
</tr>
<tr>
<td>Spatial information about important sites used for ongoing research,</td>
<td>L</td>
</tr>
<tr>
<td>monitoring and conservation programs should be provided to PWS to</td>
<td></td>
</tr>
<tr>
<td>ensure that the sites can be protected from potential impacts</td>
<td></td>
</tr>
<tr>
<td>caused by other activities in the area.</td>
<td></td>
</tr>
</tbody>
</table>

### 4.2 Access – aircraft, boating and walking

<table>
<thead>
<tr>
<th>Action</th>
<th>Level of Effort</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue to undertake maintenance activities and provide services</td>
<td>ongoing</td>
</tr>
<tr>
<td>required for the appropriate use of the Landing Area in its present</td>
<td></td>
</tr>
<tr>
<td>form.</td>
<td></td>
</tr>
<tr>
<td>Prepare more detailed policy guidance for the assessment and</td>
<td>M</td>
</tr>
<tr>
<td>authorisation of private pilots to use the Landing Area.</td>
<td></td>
</tr>
<tr>
<td>Continue to require helicopter landings to be approved and occur on</td>
<td>ongoing</td>
</tr>
<tr>
<td>an appropriate part of the Landing Area when practical.</td>
<td></td>
</tr>
<tr>
<td>Continue to require helicopter pilots entering the area to follow</td>
<td>ongoing</td>
</tr>
<tr>
<td>hygiene protocols outlined in the ‘Keeping it Clean’ manual and</td>
<td></td>
</tr>
<tr>
<td>explain biosecurity requirements to passengers.</td>
<td></td>
</tr>
<tr>
<td>Continue to require pilots to follow the ‘Fly Neighbourly Advice’</td>
<td>ongoing</td>
</tr>
<tr>
<td>guidelines to minimise impacts to natural values and visitors.</td>
<td></td>
</tr>
<tr>
<td>As the stockpiled gravel is progressively used for the maintenance</td>
<td>L</td>
</tr>
<tr>
<td>of the Landing Area, undertake actions such as ripping to</td>
<td></td>
</tr>
<tr>
<td>facilitate natural rehabilitation of the stockpile area.</td>
<td></td>
</tr>
<tr>
<td>Continue to monitor for bank erosion, vegetation damage and pollution</td>
<td>ongoing</td>
</tr>
<tr>
<td>of the waterways.</td>
<td></td>
</tr>
<tr>
<td>Maintain the public pontoon area on Melaleuca Creek and the public</td>
<td>H</td>
</tr>
<tr>
<td>mooring at Deep Water Landing and encourage use by boat-based visitors</td>
<td></td>
</tr>
<tr>
<td>and commercial operators, as well as a management vessel.</td>
<td></td>
</tr>
<tr>
<td>Remove the remaining wooden mooring on Melaleuca Inlet or undertake</td>
<td>L</td>
</tr>
<tr>
<td>works to improve its condition.</td>
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<td>Manage the public pontoon area to ensure that it is not</td>
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<td>overcrowded by kayaks or other stored items.</td>
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<tr>
<td>Continue access restrictions for vessels to Melaleuca Lagoon and</td>
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<td>beyond to Moth.</td>
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<td>Melaleuca Site and Rehabilitation Plan</td>
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- **Creek, with the exception of vessels used by PWS and residential lessees.**
- **Encourage boat-based visitors to minimise wake impact, comply with regulations while using the waterways to avoid contributing to bank erosion and follow appropriate hygiene and biosecurity practices, including rodent control.**
- Inform visitors with boats about the need for the 5-knot speed limit.  
- **Ensure that any unauthorised continued use of the old pontoon site on Melaleuca Creek does not hinder vegetation recovery on the bank and the old access track.**
- Monitor use and impacts at Deep Water Landing associated with visitors using or congregating around the public mooring facility, including track access, vegetation damage and changes to that part of the Melaleuca Inlet bank. Harden a small site at Deep Water Landing if it is considered necessary.
- **Install a sign on the bank at the Deep Water Landing public mooring facility to give visitors advice on its use.**
- Seek feedback regarding the usability of Deep Water Landing as a public mooring facility and investigate ways to rectify issues.
- Ensure that key access tracks within the Visitor Services Zone are maintained to a standard that is suitable for the range of visitors that are likely to visit (at least Class 3 – AS 2156 Walking Tracks) and are consistent with the PWS Reserve Standards Framework category ‘Day Use Get Away (Mid)’.
- **Ensure that prominent directional and hazard warning signs are installed on relevant tracks to advise walkers and other visitors about the safety hazards at the Landing Area and identify the start of the South Coast Track.**
- Construct a short link track around the western end of the Landing Area to provide safe access to the Port Davey Track.

### 4.3 Day and overnight facilities

- **Continue to provide hut accommodation for walkers and undertake appropriate maintenance activities on the huts. Any works must consider the heritage values and significance of the Charles King Memorial Hut.**
- Improve the presentation and condition of the huts, particularly the closed fireplace in the Charles King Memorial Hut, and improve ventilation.
- Maintain the camping area at the current location.
- Continue the fuel-stove only policy.
- Regularly monitor for increased trampling, vegetation loss, campsite expansion and campfire use associated with the camping area, particularly along the edge of Melaleuca Lagoon.
- Identify ways to reduce the visual impact of the existing toilet facility without reducing its functionality.
- Construct a second toilet closer to the Landing Area. If practical, include as part of a structure to replace the Troedel Shelter.
- Continue to require all visitors to remove their own rubbish.

### 4.4 Information and interpretation

- **Review and update the “Melaleuca Interpretation Action Plan” that was prepared in 2002. Aspects to consider include the development of the former bird hide into an interpretation centre that provides information about the pioneering mining history at Melaleuca and Cox Bight; increased profile of the world heritage status of the area and the Outstanding Universal Value of the TWWHA; the Orange-bellied Parrot Recovery Program (including the history of the program and Deny King’s involvement); and, updated installations in the bushwalking huts.**
- When signs are replaced, those that are recognised as having aesthetic values should not be altered unless the functionality or accuracy of the sign requires improvement to assist visitors.
- Liaise with Friends of Melaleuca (Wildcare Inc.) and the King family to investigate options for developing a heritage museum in the former Deny King Bird Observation
Determine an appropriate site and options for visitors to view and learn about orange-bellied parrots without disturbing the birds.

In partnership with the Tasmanian Aboriginal community through the Needwonnee Steering Group, undertake ongoing management of the Needwonnee Walk, particularly the renewal of the ephemeral interpretive installations.

Encourage the development of ‘on-demand’ guided tours by the Aboriginal community.

Liaise with commercial operators visiting Melaleuca in relation to the provision of consistent and appropriate information and interpretive facilities for their guests.

Ensure that pre-visit information continues to be available for visitors including information about biosecurity, ‘Fuel Stove Only Area’ measures and potential weather impacts on trip plans.

Investigate options for the replacement of the Troedel shelter. The replacement structure should have better amenity, an adequate covered area and a larger sheltered seating area.

### 4.5 Visitor monitoring

Ensure that effective arrangements are in place for the continued collection and storage of useful visitor data, particularly visitation levels.

Continue to maintain and collect data from the bushwalker registration book at the Troedel Shelter.

Instigate a visitor survey to follow on from the survey undertaken in 2001.

### 4.6 New developments

Assess proposals for new developments for consistency with zoning and potential impacts on the values of the area, particularly orange-bellied parrots.

Where possible, developments should utilise existing disturbance areas and infrastructure.

New facilities should be low-key and unobtrusive to minimise visual impacts on the remote setting and the landscape, unless there is a functional reason for the siting of particular structures, such as toilet operation.

### 4.7 Commercial visitor services

Investigate storage options for commercial operators.

All commercial operators will continue to be required to remove all waste generated by their operations.

Where practical, provide information briefings and interpretive training for guides and pilots.

### 4.8 Operational facilities

Establish pertinent operational facilities in the Remote Area Management Site south of the Landing Area, such as a workshop and storage area. Consider orange-bellied parrot and heritage values.

Improve storage facilities for PWS operational use to maintain the condition of and reduce the visual impact of items.

Continue to use existing structures for storage or other appropriate purposes, if practical, in keeping with the Melaleuca tradition of the re-use of materials.

The use of structures for storage purposes should be discussed with PWS to ensure that they are used appropriately.

If necessary provide additional staff accommodation, either as an extension to an existing building or a separate structure.

Remove all stored materials and structures no longer required.

The transfer of materials by helicopter to and from Deep Water Landing should be scheduled to minimise potential disturbance of orange-bellied parrots.

Deep Water Landing should only be used as a temporary short-term storage area.
The route to Deep Water Landing will be monitored and it will not be developed into a hardened track unless the level of use or the condition of the route warrants it.

ongoing

The route to Deep Water Landing should not be obstructed because it may continue to be used on an infrequent basis for management purposes if no long-term damage is caused and the creek crossings are useable. The preferred alternative is that equipment or materials are transferred by helicopter between Deep Water Landing and the Landing Area, or by smaller boats between Deep Water Landing and Melaleuca and Moth Creeks.

ongoing

The transfer of materials by helicopter to and from Deep Water Landing should be scheduled to minimise potential disturbance of orange-bellied parrots.

ongoing

Public use of Deep Water Landing is limited to the use of the public mooring facility to moor vessels.

ongoing

The use of Deep Water Landing by commercial operators for the infrequent delivery or collections of equipment or materials is subject to authorisation by PWS.

ongoing

### 4.9 Residential leases

Ensure that adequate measures are in place to avoid environmental impacts associated with the occupation of the residential leases.

L

Keep vehicular tracks open that are used to access the residential leases.

ongoing

### 4.10 Community and volunteers

Continue to liaise with volunteer groups to develop approved work plans.

ongoing

Provide support and assistance to volunteer groups.

ongoing

### 5.3 Rehabilitation activities

Remove contaminated soil and hazardous waste.

VH

Remove buildings that are no longer required.

VH

Transport to Hobart for disposal contaminated soil (approximately 25 cubic metres) and other waste stored at Deep Water Landing.

VH

Manage public safety and provide low-key interpretation of the former Rallinga Mine smelter and associated structures by provision of appropriate signage.

H

Retain the processing plant, smelter and two nissen sheds identified as being of heritage significance (the nissen sheds are part of the ‘Melaleuca Historic Tin Mining Area’ site on the Tasmanian Heritage Register).

ongoing

Retain the processing plant of the former Rallinga Mine and manage it as a ruin (ie minimal stabilisation works to be undertaken).

ongoing

Conserve the smelter and associated structures for heritage values.

ongoing

Photograph core components of the mine site before work commences.

VH

Remove material that is a pollution and/or safety hazard, including batteries, fuels and chemicals.

VH

Due to the fragile nature of many containers, remove liquids to new containers and transport old containers in Hazspill containers.

VH

Relocate redundant machinery will be relocated to Deep Water landing during the dry summer months ready for transport by barge to Hobart.

H

Bag contaminated soil at the mine site, to be flown to the barge during the dry summer months after the departure of orange-bellied parrots.

H

Remove the numerous non-heritage items that have been stored in the two nissen sheds which are included in the Heritage Council’s listing. Some of the items are hazardous and/or inflammable materials.

H

Undertake surface works on sites where sheds are removed to facilitate natural recovery of vegetation. Facilitate recovery by ensuring sufficient drainage and improving the surface by spreading slash or peat.

H

Do not disturb areas where vegetation has re-grown, unless it is considered practicable to improve the morphology of the affected areas (eg potentially some of the highly visible linear features of the strip mined areas, however it is likely that the vegetation will eventually grow together and reduce the visibility of the linear features).

L
and it is possible to access or modify them in a reasonable timeframe without significantly impacting other values.

| Limited active revegetation works, direct seeding or laying of peat or slash may be considered where natural revegetation has not occurred. | L |
| Ensure that drainage in areas where rehabilitation works have occurred is adequate to avoid erosion. | L |

### 6 Monitoring and evaluation

| Undertake an interim evaluation of the management plan after five years and a full evaluation after ten years. | M |
| Implement the monitoring actions as described in the operational document ‘Key desired outcomes’ to enable the assessment of management effectiveness in achieving the key desired outcomes. | M |