LAKE JOHNSON NATURE RESERVE
MANAGEMENT PLAN 1999

This Management Plan for the Lake Johnston Nature Reserve has been prepared in accordance with the requirements of Part IV of the National Parks and Wildlife Act 1970. A draft of this plan was released for public comment from 12 June 1999 to 30 July 1999.

Unless otherwise specified, this plan adopts the interpretation of terms given in Section 3 of the National Parks and Wildlife Act 1970. The term “Minister” when used in the plan means the Minister administering the Act. The term “Reserve” refers to the Lake Johnston Nature Reserve.

In accordance with Section 23(2) of the National Parks and Wildlife Act 1970, the managing authority for the Reserve, in this case the Director of National Parks and Wildlife, shall carry out his or her duties in relation to the Reserve for the purpose of giving effect to, and in accordance with the provisions of, this Management Plan. The position of Director is held by the Director, Parks and Wildlife Service, Department of Primary Industries, Water and Environment.

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

ACKNOWLEDGEMENTS

Much useful information and a variety of recommendations included in this management plan have been drawn from the Interim Management Plan for the Mt Read RAP (Mineral Resources Tasmania, et al, 1997). The co-operative time and effort that went into that plan have greatly contributed to this plan.

Many people have also assisted in the preparation of this plan by providing information and comments on earlier drafts of it. Their time and effort are gratefully acknowledged.

APPROVAL

This management plan was approved by His Excellency the Governor-in-Council on 1 November 1999 and took effect on 24 November 1999, being seven days after publication of that approval in the Government Gazette.

The provisions of Section 7.3 of the plan, which authorise the exercise of certain statutory powers, are of no effect until they are approved by both Houses of the Parliament of Tasmania and gazetted in accordance with Section 21 of the National Parks and Wildlife Act 1970.
Summary

The scenic natural landscapes of the Lake Johnston Nature Reserve contain intrinsically important environmental values, incorporating Huon pine stands and other vegetation communities of high conservation value. It was to protect these values that the Reserve was created. These features of the Reserve are also of scientific, educational and visitor interest. The Reserve may also contain features of Aboriginal and historic heritage value.

The principal objective of management is to protect the values of the Reserve, and to provide for controlled, limited access by visitors interested in those values.

To this end the management plan:

- Zones the Reserve into two zones:- the Controlled Visitor Access Zone and the Controlled Scientific Zone.
- The Controlled Visitor Access Zone provides limited public access to a small area of the Reserve, but only as part of a licensed tour or special interest group. From this Zone, visitors can observe areas of living Huon pine and other significant features without impacting on them.
- The Controlled Scientific Zone limits access to the majority of the Reserve, including areas of living Huon pine or other significant features, to visits necessary for management or scientific research.
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Summary</strong></td>
<td>iv</td>
</tr>
<tr>
<td><strong>Introduction</strong></td>
<td>1</td>
</tr>
<tr>
<td>1.1 An Overview of the Reserve</td>
<td>1</td>
</tr>
<tr>
<td>1.1.1 Location and Regional Context</td>
<td>1</td>
</tr>
<tr>
<td>1.1.2 Climate</td>
<td>1</td>
</tr>
<tr>
<td>1.1.3 Importance of the Reserve</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Creation of the Reserve</td>
<td>2</td>
</tr>
<tr>
<td>1.2.1 Reservation History</td>
<td>2</td>
</tr>
<tr>
<td>1.2.2 Area and Boundaries</td>
<td>2</td>
</tr>
<tr>
<td><strong>The Vision and Objectives for the Reserve</strong></td>
<td>4</td>
</tr>
<tr>
<td>2.1 The Vision for the Reserve</td>
<td>4</td>
</tr>
<tr>
<td>2.1.1 The Vision</td>
<td>4</td>
</tr>
<tr>
<td>2.1.2 Achieving the Vision</td>
<td>4</td>
</tr>
<tr>
<td>2.2 Purposes and Objectives of Nature Reserves</td>
<td>4</td>
</tr>
<tr>
<td>2.3 Specific Reserve Management Objectives</td>
<td>5</td>
</tr>
<tr>
<td>2.4 Management Zones</td>
<td>5</td>
</tr>
<tr>
<td><strong>Reserve Conservation</strong></td>
<td>8</td>
</tr>
<tr>
<td>3.1 Landforms, Geology &amp; Soils</td>
<td>8</td>
</tr>
<tr>
<td>3.2 Natural Landscape and Water Quality</td>
<td>9</td>
</tr>
<tr>
<td>3.3 Flora</td>
<td>10</td>
</tr>
<tr>
<td>3.4 Fauna</td>
<td>11</td>
</tr>
<tr>
<td>3.5 Aboriginal and Historic Heritage</td>
<td>12</td>
</tr>
<tr>
<td>3.5.1 Aboriginal Heritage</td>
<td>12</td>
</tr>
<tr>
<td>3.5.2 Historic Heritage</td>
<td>13</td>
</tr>
<tr>
<td><strong>Reserve Protection</strong></td>
<td>14</td>
</tr>
<tr>
<td>4.1 Fire Management</td>
<td>14</td>
</tr>
<tr>
<td>4.2 Pests, Weeds, and Diseases</td>
<td>15</td>
</tr>
<tr>
<td>4.2.1 Introduced Fauna</td>
<td>15</td>
</tr>
<tr>
<td>4.2.2 Weeds</td>
<td>16</td>
</tr>
<tr>
<td>4.2.3 Plant Diseases</td>
<td>16</td>
</tr>
<tr>
<td>4.3 Soil Conservation and Erosion Control</td>
<td>18</td>
</tr>
<tr>
<td>4.4 Managing Visitor Impacts</td>
<td>18</td>
</tr>
<tr>
<td>4.5 Managing Development Works</td>
<td>19</td>
</tr>
<tr>
<td><strong>Visiting the Reserve</strong></td>
<td>20</td>
</tr>
<tr>
<td>5.1 Understanding the Reserve Visit</td>
<td>20</td>
</tr>
<tr>
<td>5.2 Interpretation and Education</td>
<td>20</td>
</tr>
<tr>
<td>5.3 Access</td>
<td>21</td>
</tr>
<tr>
<td>5.3.1 Air Access</td>
<td>22</td>
</tr>
<tr>
<td>5.3.2 Vehicular Access</td>
<td>22</td>
</tr>
<tr>
<td>5.3.3 Walking Access</td>
<td>23</td>
</tr>
<tr>
<td>5.4 Providing Facilities and Services</td>
<td>24</td>
</tr>
<tr>
<td>5.4.1 Controlled Visitor Access Zone</td>
<td>24</td>
</tr>
<tr>
<td>5.4.2 Controlled Scientific Zone</td>
<td>25</td>
</tr>
<tr>
<td>5.4.3 Assessing Visitor Access Proposals</td>
<td>25</td>
</tr>
</tbody>
</table>
1 Introduction

1.1 An Overview of the Reserve

1.1.1 Location and Regional Context

Lake Johnston Nature Reserve lies some 8 kilometres south of Rosebery in central western Tasmania (see Map 1). The Reserve is surrounded on the western, southern and eastern sides by the Mt Dundas-Mt Read Regional Reserve. The northern boundary of the Reserve abuts State Forest. The Reserve lies a short distance from the town of Rosebery. Access to the Reserve can only be obtained by travelling through mining leases.

The Reserve contains environmental features of potential interest to visitors to the west coast region. Many of these features are available for visitors at other sites in the region, but some are specific to the Reserve.

1.1.2 Climate

The Lake Johnston Nature Reserve is characterised by cool temperatures, averaging 5°C during winter and about 18°C in summer. The prevailing winds are south-westerly and north-westerly especially in winter. In summer, hot, dry northerly winds can occur. The average rainfall is approximately 3300 mm per annum. Rainfall is generally spread year round with higher falls in the winter. Snow occurs above the 600 m level and may fall during any month, though generally in winter.

1.1.3 Importance of the Reserve

The Lake Johnston Nature Reserve is similar to a Category 1 Protected Area in the categorisation system of the International Union for the Conservation of Nature (IUCN). Category 1 reserves are strict nature reserves or wilderness areas managed mainly for science or wilderness protection.

The Reserve contains a number of rainforest communities currently either unreserved or poorly represented in the existing reserve system, and which are considered to be of biogeographic significance in terms of their species composition, biodiversity and structural forms. The area is part of a major stronghold of the rare restricted endemic Orites milliganii, and also contains a significant population of the endemic conifer Cheshunt pine Diselma archeri in its rare arboreal form, including the largest and possibly oldest specimens recorded. At least 7 of the Tasmanian endemic pine species occur in the Reserve. The area lies within the biggest single patch of deciduous beech Nothofagus gunnii in Tasmania.

The Reserve also contains two disjunct but genetically identical subalpine patches of Huon pine Lagarostrobus franklinii. Genetic studies indicate that the Huon pine stands have reproduced vegetatively, meaning the DNA in each plant is essentially identical. All the trees are male, forming as branches of the parent material fell and rooted to create new clones of the original tree or trees. The existing trees may be derived from one or a few single individuals which may have been present on the site over 10,000 years ago. However, of the living individual trees, none is over approximately 1,500 years old.

Dendro-chronological (tree ring) studies of the living and dead Huon pines have produced an important climatic record extending back some 5000 years, the longest record of its type in the southern hemisphere. On a global basis, this is considered to be one of the most significant of such records, emphasising the importance of both the living and dead areas of Huon pine. Analysis of pollen in sediment cores taken from Lake Johnston indicate that the species has existed at the site for over 10,000 years.

The scientific importance of the Reserve, and the values of the ancient Huon pines in particular, are of considerable interest to some people. Although larger Huon pine trees can be visited in other places, the knowledge of the age and scientific importance of these trees makes them of particular value to potential special interest visitors.

1.2 Creation of the Reserve

1.2.1 Reservation History
The reservation of the Reserve as a nature reserve, to be known as the Lake Johnston Nature Reserve, was enacted by Section 21 of the Regional Forest Agreement (Land Classification) Act 1998 which was formally proclaimed on 30 April 1999, by Statutory Rule No. 36.

The proposal to reserve the area as a nature reserve was a recommendation of the Interim Management Plan for the Mt Read RAP (Mineral Resources Tasmania, et al, 1997) formulated and agreed to by government agencies, statutory bodies, and relevant land users.

Creation of the Reserve was made possible by Pasminco Australia Ltd surrendering part of mining lease 28M/93 to a depth of 50 metres.

1.2.2 Area and Boundaries

The Reserve has a total area of about 138 hectares. The exact boundaries of the Reserve are set out on Plan Number 4544 held in the Central Plan Register, and reproduced on Map 1.

The Reserve is in the West Coast Municipality.
Map 1 Boundaries
2. The Vision And Objectives for the Reserve

2.1 The Vision for the Reserve

The vision for the Reserve allows people to picture how the Reserve will be in the future and provides direction to management. The vision helps avoid inappropriate development and management, and the “tyranny of small decisions”, guiding management not just for the short term, but for the protection of the important values of the Reserve into the future.

2.1.1 The Vision

The Reserve contains healthy natural biodiversity, and viable populations of all indigenous species. Ecological processes and systems have a high natural integrity. The stands of ancient Huon pine *Lagarostrobus franklinii*, *Orites milliganii*, *Diselma archeri* and deciduous beech *Nothofagus gunnii* are healthy and not threatened by human intervention. The natural diversity and viability of the flora of the Reserve is secure.

There has been no recent disturbance or contamination of the land and waterways within the Reserve by human activities.

The Aboriginal and historic heritage of the Reserve is identified and protected.

Visitors to the Reserve appreciate the significant and sensitive features and values of the Reserve, including the ancient Huon pine, without disturbing or damaging them.

Visitor access is strictly controlled and carefully managed, discretely located in carefully delineated areas which do not threaten the values of the Reserve.

2.1.2 Achieving the Vision

This management plan sets out how the vision for the Reserve will be achieved. To check the effectiveness of the management plan in doing this, indicators can be used to evaluate implementation of the plan and to check if the vision and management objectives for the Reserve have been achieved.

- Review the plan ten years after gazettal of its approval by the Governor, or sooner if research, monitoring, or other circumstances show this to be needed.

- In the review of the plan, evaluate the implementation of the management prescriptions and their effectiveness in achieving the vision and management objectives of the plan.

- As a minimum, use the performance indicators set out in Appendix 1 when evaluating the plan’s implementation and outcomes.

- Utilise any relevant, additional monitoring and evaluation procedures developed during the period of the plan when evaluating the plan’s implementation and outcomes.

2.2 Purposes and Objectives of Nature Reserves

Nature reserves are a category of reserve under the Tasmanian reserve category system. The purposes and objectives of nature reserves are set out in the *National Parks and Wildlife Act 1970*.

A nature reserve is an area of land that contains natural values that -

(a) contribute to the natural biological diversity or geological diversity of the land, or both; and

(b) are unique, important or have representative value.

The purpose of reservation of nature reserves is the conservation of the natural
biological diversity or geological diversity of the area of land, or both, and the conservation of the natural values of that area of land that are unique, important or have representative value. These purposes apply to Lake Johnston Nature Reserve.

The management objectives of nature reserves are:

- to conserve natural biological diversity;
- to conserve geological diversity;
- to preserve the quality of water and protect catchments;
- to conserve sites or areas of cultural significance;
- to encourage education based on the purpose of reservation and the natural or cultural values of the nature reserve, or both;
- to encourage research, particularly that which furthers the purposes of reservation;
- to protect the nature reserve against, and rehabilitate the nature reserve following, adverse impacts such as those of fire, introduced species, diseases and soil erosion on the nature reserve's natural and cultural values and on assets within and adjacent to the nature reserve;
- to encourage cooperative management programs with Aboriginal people in areas of significance to them in a manner consistent with the purpose of reservation and the other management objectives.

All of the general objectives for nature reserves set out in the Act apply to Lake Johnston Nature Reserve. The reasons these objectives apply and the manner in which the objectives will be achieved are specified in detail throughout this management plan.

2.3 Specific Reserve Management Objectives

To maintain the Reserve values, and to achieve the Reserve vision, management objectives are set out below. These objectives are fundamental to the long term protection of the Reserve. The following management objectives are consistent with the general management objectives for nature reserves. They elaborate upon and giving emphasis to them in the light of the particular features, circumstances, issues and values of the Lake Johnston Nature Reserve described or identified in this management plan.

Objectives

- Conserve the stands of Huon pine.
- Conserve flora species and communities of conservation significance, National Estate flora values, and natural flora diversity of the Reserve.
- Conserve subfossil deposits.
- Develop public understanding of the values and goals for management of Lake Johnston Nature Reserve.
- Conserve natural landscapes and sites of geoconservation and National Estate significance in the Reserve.
- Control and limit visitor access and facilities, on the basis of the precautionary principle, to that which is ecologically sustainable and does not threaten the values of the Reserve.
- Enrich visitor experiences of Reserve values through education and interpretation.

2.4 Management Zones

Although the Reserve vision and management objectives apply to the entire Reserve, different conditions prevail in different areas of the Reserve. To ensure appropriate management of these differing conditions, management zones have been designated to take account of and protect the environmental, heritage, educational and visitor values of the Reserve. By zoning the Reserve for management purposes, specific management prescriptions can deal with the localised values and character within each zone.

Note that the Reserve is a restricted area to which the public does not have a general right of access (see Section 5.3)

Objectives

- The objectives of zoning are to:
  - protect Reserve values by concentrating and directing any visitor access and facilities to designated locations;
  - take account of localised features, conditions, and values;
- ensure areas of conservation significance in the Reserve are undisturbed.

**Policies**

- The Lake Johnston Nature Reserve is divided into two distinct management zones (refer to Map 2):
  1. Controlled Visitor Access Zone
  2. Controlled Scientific Zone

- Visitor facilities and services in each Zone will be limited to those provided for in Section 5 of this management plan.

- The boundaries of the Controlled Visitor Access Zone will be set at least ten metres from any existing live Huon pine or other significant features and may be varied at any time research indicates the need to provide further protection of Reserve values.

### Table 1 Management Zones

<table>
<thead>
<tr>
<th>ZONE &amp; LOCATION</th>
<th>VALUES &amp; USES</th>
<th>OBJECTIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Controlled Visitor Access Zone</strong>&lt;br&gt;Stage 1 of this Zone covers a portion of the Lake Johnston Road and 20 metres either side as shown on Map 2. It provides for vehicle access and a visitor viewing area. Stage 2 provides for a potential pedestrian access route from the viewing area.</td>
<td>The Zone provides for a limited number of strictly controlled tour visitors accompanied by licensed guides, or visits for scientific, management, or infrequent special interest purposes approved by the Director. The only visitor facilities are located here and these are minimal, low impact and precisely sited to avoid any disturbance of the significant environmental features to which the Zone provides viewing access.</td>
<td>- protect, maintain and monitor environmental features and values; and - provide low impact, low density, non-intrusive controlled visitor opportunities consistent with the above objective.</td>
</tr>
<tr>
<td><strong>Controlled Scientific Zone</strong>&lt;br&gt;The Zone covers all of the Reserve not included in the Controlled Visitor Access Zone.</td>
<td>The Zone protects the significant values of the Reserve and excludes all access except for strictly controlled scientific or management purposes approved by the Director.</td>
<td>- conserve the natural integrity of the Zone; - protect, maintain and monitor the diversity of plant and animal species and communities; and - provide for approved scientific research and monitoring.</td>
</tr>
</tbody>
</table>
Map 2 Management Zones
## 3 Reserve Conservation

### 3.1 Landforms, Geology & Soils

Lake Johnston Nature Reserve is named after the lake which lies roughly in the middle of the Reserve. The Lake itself lies at some 880 metres above sea level. At its highest point on the Reserve boundary, just below the summit of Mt Read, the Reserve rises to 1100 metres. To the south, the Reserve falls to some 750 metres above sea level.

Landforms in the Mt Read area are typical of the western ranges' physiographic region. Precambrian and folded Palaeozoic rocks form the ranges in which the topography is largely controlled by major structural trends. More resistant quartzite and conglomerate units form the dissected mountain ranges which almost parallel the west coast. The steep sides of the ridges were formed by large valley glaciers. Lake Johnston is a glacial lake, formed in an incipient cirque and partly surrounded by moraine deposits.

The geology of the area is characterised by an elongate zone called the Dundas Element. The eastern side of the Dundas Element, in which the Reserve lies, comprises a 10–15 kilometre wide belt of Cambrian volcanic and similar rocks known as the Mt Read volcanics. Several major volcanic and volcano-sedimentary sequences or rock associations of regional extent occur within the volcanic belt. The geological relationships between these units are complicated and are further dislocated by faulting. The most significant fault is a NNE-trending structure, the Henty Fault Zone, which obliquely bisects the volcanic belt from south of Mt Read to near Hellyer. There are major differences in rock types across the fault zone.

The sedimentary rocks comprise dolomitic siltstone, conglomerate and quartzite of the Dundas group. The Cambrian Mt Read Volcanics comprise lava flows, tuffs, volcaniclastic sandstone and occasional areas of shale, including black shale, and ashy siltstone. There are also dykes of basalt and glacial deposits, mainly till, occur.

The characteristic feature of all soils found within the area is their high organic content. A peat mantle of fairly uniform characteristics is capable of developing over a variety of rock types as a result of the cool temperatures and high rainfall. The cover is rarely more than 500 mm deep and usually has a sharp basal boundary. Peat can rapidly absorb and retain large quantities of water, thus making it resistant to erosion. However, once the peat layer is lost through disturbance or fire, it is not readily replaced and the underlying substrate is frequently eroded once exposed.

The volcanic rocks give rise to gravelly brownish yellow gradational soils, while dark grey gradational soils develop on mudstone and slate. These soils are generally limited in depth (up to about 500 mm) and are highly siliceous and infertile. Volcanic soils predominate in the area. These soils are subject to compaction, surface puddling, are poorly drained and may be extensively sheet eroded on slopes. As well as being shallow and organic, the soils are highly acidic and low in nutrients, particularly nitrogen and phosphorus.

The Reserve contains ancient Huon pine subfossil deposits which show a direct relationship between living and dead Huon pine material. The living stands overlap in age with subfossil material which goes back further in time, giving researchers more information on climate change through the Holocene.

### Objectives

- The objectives of geodiversity conservation (geoconservation) in the Reserve are to:
  - protect, maintain and monitor geodiversity;
  - maintain the natural rates and magnitudes of change in earth processes; and
  - minimise harmful impacts on geoconservation values.

### Policies

- Potential adverse impacts on geodiversity and earth processes will be assessed when planning any development or action, including land rehabilitation and stabilisation.
• Management practices and development will avoid or otherwise minimise impacts on the integrity of sites of geoconservation significance.

Actions

• Monitor impacts on geodiversity.
• Establish protocols for collection of subfossil deposits.

3.2 Natural Landscape and Water Quality

Lake Johnston Nature Reserve contains large relatively undisturbed areas with topographic and catchment integrity where natural processes continue largely unmodified by human intervention. The Reserve has been assessed as an indicative area of National Estate significance as a natural landscape (Tasmanian Public Land Use Commission, 1997). Because of its values as a natural landscape, the Reserve has important scenic values.

Because of the mineralised nature of the rock types occurring in the Reserve, the concentration of metals in the waters of the Reserve may exceed drinking water quality standards. This is a natural phenomenon, representative of conditions in the area.

In accordance with the State Policy on Water Quality Management 1997, protected environmental values are required to be set for the surface waters and ground waters within the Reserve.

Following public consultation on this management plan, which proposes protected environmental values below, the Board of Environmental Management and Pollution Control and the Director will set the protected environmental values for the Reserve. Thereafter, the Board will determine appropriate indicators for each of the values and would be expected to apply the most stringent numerical criteria to all the indicators. This set of indicators and numbers will be the Water Quality Objectives for the Reserve. They will ensure protection of all the values and be used to determine whether the values are being met over time. The proposed protected environmental values are:

A Protection of aquatic ecosystems:

- pristine or nearly pristine ecosystems for those watercourses with their headwaters in the Reserve;
- modified ecosystems from which edible fish, crustacea and shellfish are not harvested for all other waters within the Reserve, having regard to the values for which the area is reserved.

B Protection of recreational water quality and aesthetics:

- secondary contact for all waters within the Reserve;
- aesthetics.

Objectives

• The objectives of natural landscape management in the Reserve are to:

  - protect, maintain and monitor the National Estate values of the natural landscape;
  - maintain or enhance water quality designated by protected environmental values; and
  - protect scenic values.

Policies

• Designated protected environmental values will be adopted as the minimum standard for water quality within the Park and State Reserve.

• Materials and devices required for scientific monitoring and research, management or visitor management purposes will only be placed in or near
any waterway or body of water in accordance with this management plan.

**Actions**

- Identify and protect significant natural landscape features and attributes that contribute to the National Estate value of the Reserve as a natural landscape.

- Identify and protect significant natural landscape viewfields.

- Assess the visual impact of proposed developments on natural landscape values prior to approval of such developments.

- Where feasible, remove, relocate, or replace facilities, including roads and tracks, whose location or design significantly impact on natural landscape quality.

### 3.3 Flora

The flora of the Reserve has developed on the Mt Read volcanics (see 3.1), a contributing factor in the distinctiveness of the vegetation. The Reserve contains ten rainforest communities currently either unreserved or poorly represented in the existing reserve system (Bacon, 1992), and which are considered to be of biogeographic significance in terms of their species composition, biodiversity and structural forms. The area is part of a major stronghold of the rare restricted endemic shrub *Orites milliganii*, and also contains a significant population of the endemic conifer *Cheshunt pine Diselma archeri* in its rare arboreal form, including the largest and possibly oldest specimens recorded. Only one other site in the State, Mt Field, has an equivalent number of native conifers. At least 7 of the Tasmanian endemic pine species occur in the Reserve. The area lies within the biggest single patch of deciduous beech *Nothofagus gunnii* in Tasmania. The extensiveness of the stands of *Athrotaxis laxifolia* in the area is also important.

The Reserve also contains two disjunct but genetically identical subalpine patches of Huon pine *Lagarostrobos franklinii*. The Huon pine occurs at an elevation of up to 1000 metres above sea level, making the community among the highest recorded living examples of this species.

Genetic studies indicate that the Huon pine stands have reproduced vegetatively, meaning the DNA in each plant is essentially identical. All the trees are male, forming as branches of the parent material fell and rooted to create new clones of the original tree or trees. The existing trees may be derived from one or a few single individuals which may have been present on the site over 10,000 years ago. However, of the living individual trees, none is over approximately 1,500 years old.

Dendro-chronological (tree ring) studies of the living and dead Huon pines have produced an important climatic record extending back some 5000 years, the longest record of its type in the southern hemisphere. On a global basis, this is considered to be one of the most significant of such records, emphasising the importance of both the living and dead areas of Huon pine. Analysis of pollen in sediment cores taken from Lake Johnston indicate that the species has existed at the site for over 10,000 years.

Flora species observed in the general area of the Reserve are listed in Appendix 1.

The flora of the Reserve has significant conservation values. The Reserve has National Estate values as an indicative area of relictual flora, flora species and forest community richness and as a refuge from fire and disease (Tasmanian Public Land Use Commission, 1997).

The importance of the Reserve for flora conservation means that conservation of plant communities and species is one of the major considerations of management.
Objectives

- The objectives of flora conservation in the Reserve are to:
  - protect, maintain and monitor natural flora diversity;
  - protect, maintain and monitor the Lagarostrobos franklinii, Orites milliganii, and Diselma archeri in the Reserve;
  - protect, maintain and monitor plant communities of conservation and National Estate significance;
  - protect, maintain and monitor plant species listed in the Threatened Species Protection Act 1995; and
  - minimise harmful impacts on Reserve flora.

Policies

- The following areas will be given high flora conservation priority:
  - stands of Lagarostrobos franklinii;
  - stands of Orites milliganii;
  - stands of Diselma archeri;
  - threatened species; and
  - any area containing flora species or communities of conservation significance.

- Adverse impacts in high flora conservation priority areas will be avoided or limited to those which are localised and pose no impact on the long term sustainability of the species or communities within the Reserve.

- Only local provenance of species native to the Reserve will be used in rehabilitation or other planting works.

- All practicable efforts will be made, consistent with the available resources, prevailing Fire Danger Rating, fire intensity and fire crew safety, to exclude unwanted wildfire from or restrict its spread in high flora conservation priority areas.

Actions

- Undertake further detailed vegetation mapping of the Reserve as required.

- Undertake a population census and condition report on Orites milliganii.

- Prepare and/or implement management programs for flora species or communities of conservation significance.

3.4 Fauna

A comprehensive fauna survey for the Reserve has not been carried out.

Mammals and Birds

The Reserve contains a diversity of wildlife. Common wombats *Vombatus ursinus*, Bennetts wallaby *Macropus rufogriseus*, Tasmanian pademelon *Thylogale billardierii*, and Tasmanian devil *Sarcophilus harrisii* occur in the vicinity of the Reserve. The common ringtail possum *Pseudocheirus peregrinus* and the brushtail possum *Trichosurus vulpecula* occur in the area as do the spotted-tailed quoll *Dasyurus maculatus* and the eastern quoll *Dasyurus viverrinus*. Appendices 3 and 4 list mammal and bird species present at Lake Johnston and surrounding areas.

Reptiles, Amphibians and Invertebrates

Two species of Tasmanian land snakes have been recorded in the vicinity of Reserve. These are the tiger snake *Notechis ater*, and white-lipped whipsnake *Drysdalia coronoides*. Two species of lizards are recorded in the area as well as four of the ten frog species occurring in Tasmania. Reptile and amphibian species are listed in Appendix 3.

A burrowing crayfish *Parastacoides tasmanicus*, which may be of interest to visitors, is found under wood in the area.

Objectives

- The objectives for fauna conservation in the Reserve are to:
  - protect, maintain and monitor the diversity of indigenous fauna and habitat;
  - protect, maintain and monitor fauna species listed in the Threatened Species Protection Act 1995; and
  - minimise harmful impacts on indigenous fauna and their habitats.

Policies

- All practicable efforts will be made to prevent adverse fire regimes and other impacts on fauna species.
Any significant habitat of threatened fauna species will be left undisturbed or otherwise given special protection or management.

**Actions**

- Conduct fauna surveys to improve knowledge of the biodiversity values of the Reserve and support effective management and protection.

### 3.5 Aboriginal and Historic Heritage

#### 3.5.1 Aboriginal Heritage

Evidence shows that Aboriginal people have lived in Tasmania continuously from at least 37,000 years ago. Aboriginal heritage has been identified within 5 kilometres of the Reserve.

Lake Johnston is probably within the territory of the West Coast Tribe (Cosgrove, 1990).

The Aboriginal heritage of Lake Johnston Nature Reserve has not been systematically investigated. The available evidence suggests that use of the area would have been intermittent. Any Aboriginal heritage in the Reserve will have a strong and continuing significance to the Tasmanian Aboriginal community.

New legislation dealing with Aboriginal heritage management is under consideration. At present, the [Aboriginal Relics Act 1975](#) applies.

**Objectives**

- The objectives of management of Aboriginal heritage are, in cooperation with the Aboriginal community, to:
  - identify and record Aboriginal heritage; and
  - protect and conserve Aboriginal heritage.

**Policies**

- Aboriginal heritage values will be assessed and protected in accordance with this Management Plan and any agreed national or state charter or guidelines for Aboriginal heritage.

- The Aboriginal community will be consulted on any undertaking or development which may impinge upon Aboriginal heritage.

- All proposed landscape modification, development, or maintenance within the Reserve will be subject to the prescriptions of this plan.

- As far as possible, development will be located well away from areas of Aboriginal heritage.

- Aboriginal heritage will not be deliberately disturbed for management, development or research purposes unless the Director determines there is no practicable alternative and a permit to disturb aboriginal relics has been issued under the [Aboriginal Relics Act 1975](#).

**Actions**

- In cooperation with the Aboriginal community, identify and record Aboriginal heritage.

- Report all Aboriginal relics discovered in the Reserve to the Director, in accordance with the [Aboriginal Relics Act 1975](#).

- Consult with the Aboriginal community on the management of Aboriginal heritage.

- Monitor Aboriginal heritage for, and protect it from, damage.

#### 3.5.2 Historic Heritage

- [Aboriginal Relics Act 1975](#)
There is limited knowledge of the historic heritage features of Lake Johnston Nature Reserve. The general area has been subject to mineral exploration since as early as the 1890s and features associated with the mining industry may be present in the Reserve. One known feature is a Huon pine tree with marks blazed on three sides, probably marking the corner of a mining lease. Any such features of heritage value need protection from avoidable decay or disturbance, and maintenance of their integrity.

**Objectives**

- The objectives of historic heritage conservation and management are to:
  - identify and record historic heritage in the Reserve;
  - actively conserve and maintain the heritage integrity and quality of heritage structures and other heritage fabric and features; and
  - exclude intrusive development and activity.

**Policies**

- Conservation and management of historic heritage in the Reserve will adhere to the Burra Charter (see Marquis-Kyle & Walker, 1992) and its associated guidelines.

- Conservation, use, and management of historic heritage will conform with this management plan.

- To avoid disturbance of historic ground features, including quarries, sub-surface remains, and archaeological deposits such as building footings, drainage channels and tracks, an archaeological assessment will be required before approval of any development or ground-breaking work in areas of heritage significance.

- Any dangerous structures will be made safe, in keeping with their heritage significance.

- Any damaging uses, activities and developments which intrude upon or detract from heritage values will be removed.

- Conservation policy statements or plans will be prepared for all significant historic heritage features.

- Historic artefacts will be catalogued and appropriately stored. When warranted, conservation measures will be adopted.

- A record of historic places will be maintained for the purpose of management, monitoring, research, and public interest.

**Actions**

- Identify, record and assess the significance and condition of all historic features.

- Protect historic places from processes and actions which have an adverse effect.
4 Reserve Protection

4.1 Fire Management

Approximately 30% of the Reserve and adjacent areas has been damaged by bushfires since white settlement. Major fires occurred during the 1890s and in February 1960. Regrowth is very limited and at a very slow rate.

During the last event, a major fire started in the Rosebery area and moved up the Natone and Ring River valleys onto Mt Hamilton and Mt Read. Areas of vegetation with conservation significance were destroyed, including populations of King Billy and Huon pine. Over most of the alpine areas, almost no regrowth of these species has occurred. All rainforest and alpine communities are extremely sensitive to fire and research suggests it will be many millennia before fire-disturbed areas reach climax species composition and structure. Further burning of disturbed sites may lead to local extinction of species and community types.

The Parks and Wildlife Service is responsible under the Fire Service Act 1979 and the Fire Service (Miscellaneous) Regulations 1996 for all aspects of fire management within the Reserve, including prevention, containment and suppression. The Parks and Wildlife Service has a duty of care to visitors and surrounding land owners to take reasonable steps to avoid a reasonably foreseeable risk of fire. The mining lease ML7M/91 currently held by Goldfields Tasmania Ltd abuts the eastern side of the Reserve and to the west and south mining lease ML28M/93 is currently held by Pasminco Australia Ltd. These leases include some fire management requirements and there are fire action plans covering both leases. To the north the Reserve borders on State Forest, and various Telstra and other communication facilities are located on top of Mt Read. The State forest contains important timber assets.

The focus of wildfire prevention is on protection of the Reserve’s values and neighbouring properties.

The highest priority for wildfire suppression is areas of high flora conservation significance and neighbouring properties.

During a wildfire, fire behaviour and suppression necessity will determine the on-ground actions and may mean that priorities need modification on the day.

Objectives

- The objectives of fire management are to:
  - protect areas of high flora conservation significance;
  - protect neighbours and their property; and
  - maintain or improve nature conservation values.

Policies

- Fire management planning and procedures will accord with this management plan.
- On the basis of contemporary knowledge, fire management priorities will be directed towards total exclusion of fire to protect the flora conservation significance of the Reserve.
- Fire management will be undertaken in consultation with relevant authorities and local landholders including Forestry Tasmania, mining lease holders, and Telstra.
- To ensure consistency of strategies and actions and effective use of resources, fire management will be aligned with the fire management plans and fire action plans developed for neighbouring lands.
- Fire management and suppression procedures will accord with the Inter-Agency Fire Management Protocol agreed between the Parks and Wildlife Service, the Tasmania Fire Service and Forestry Tasmania (Forestry Tasmania et al, 1998).
- Except for emergency fire suppression, all fire management actions will be undertaken in accordance with Section 4.5.
- All practicable measures consistent with this management plan will be taken to
diminish the risk of wildfires occurring in the Reserve and to lessen their impact.

- Visitors will not be permitted to light fires within the Reserve.
- Visitors will not be permitted to smoke within the Reserve.
- All vehicles entering the Reserve must be fitted with a fire extinguisher.
- Except for management purposes approved by the managing authority, matches or other fire lighting devices will not be permitted in the Reserve.
- Use of machinery which may produce sparks, such as chainsaws, will not be permitted when the relative humidity is less than 40% and the fire danger rating for the relevant fuel type is 20, unless such use is part of an approved fire prevention or containment operation.
- When fire danger conditions warrant, the Director or authorised Reserve staff may close all or some areas of the Reserve by restricting access.
- Within the capacity to do so, Parks and Wildlife Service personnel and equipment will be provided for effective first attack capability. Further assistance may be sought through the Tasmania Fire Service and Forestry Tasmania.

**Actions**

- Develop and implement a fire management program.
- Liaise with neighbouring land managers, including mining lease holders, to develop a joint approach to fire monitoring and management.
- Explain fire management policies and fire safety procedures to all visitors and neighbours, their staff and other workers.
- Prevent public vehicular access.
- Make all practicable efforts, consistent with the available resources, prevailing Fire Danger Rating, fire intensity and fire crew safety, to exclude wildfire from or restrict the spread of wildfire in areas of high flora conservation significance.

### 4.2 Pests, Weeds, and Diseases

#### 4.2.1 Introduced Fauna

Exotic mammals reported in or near the Reserve include dogs and feral cats. Some exotic birds also may occur.

All these exotic pests have impacts on native species and ecosystems. The presence of pest species not indigenous to the Reserve is out of keeping with the concept of a nature reserve.

**Objectives**

- The objectives of management of introduced fauna in the Reserve are to:
  - eradicate introduced species where this is feasible and warranted by the damage being caused; and
  - control and manage introduced species where eradication is not practicable or warranted.

**Policies**

- Eradication of introduced fauna will only be attempted where populations of non target species are not threatened by the proposed methods, unless the threat from the introduced species is greater than the threat from eradication methods.
- Eradication, control, and containment programs and priorities will be based on clear, well documented contemporary knowledge or, where necessary, additional research.
- Except in accordance with the *National Parks and Reserves Regulations* 1999, stock, pets and other domestic animals will not be permitted entry into the Reserve.

**Actions**

- Monitor introduced animal populations within the Reserve.
- Prepare management programs for any introduced fauna species which monitoring suggests require active management.

#### 4.2.2 Weeds

No detailed weed surveys have been conducted but there is some evidence of introduced flora along roadsides leading to
the Reserve. These include varieties of thistles, burrs and pampas.

Effective control and management of weeds is necessary and priority targets for control need to be identified. Land owners and land managers have a responsibility to prevent weeds spreading from their land to neighbouring tenures. Washdown requirements (see 4.2.3) are likely to limit introduction or spread of weed species.

**Objectives**

- The objectives of weed management in the Reserve are to:
  - eradicate weeds where this is feasible and warranted by the damage being caused; and
  - control and manage weeds where eradication is not possible or warranted.

**Policies**

- In general, weed management will accord with the provisions of the introduced plants policy (Parks and Wildlife Service, 1998)
- Weed management will be linked with:
  - protection of environmental values;
  - erosion control; and
  - revegetation works.
- An integrated regional approach to weed management, involving neighbouring land owners and managers, will be supported.
- Eradication or control of weeds will only be attempted where non target species are not threatened by the proposed methods, unless the threat from the weeds is greater than the threat from eradication methods.

**Actions**

- Monitor the species and distribution of weeds within the Reserve.
- Prepare weed management programs for any weeds which monitoring suggests require active management.

4.2.3 **Plant Diseases**

*Phytophthora cinnamomi* is a microscopic fungus which lives in the soil and roots and causes severe dieback or death in at least 136 native plant species in sedgeland, heath, open forest, scrub and disturbed rainforest. Although the disease can spread by natural means, it is spread more rapidly and over greater areas by human activity. The disease can be spread in infected soil carried on boots, wheels and tracks of vehicles and machinery and by animals which scratch or dig in the soil. It can also be spread quite rapidly down slope with the movement of water. Except for localised infections, once an area is infected there is no known practical means to eliminate it from that area. Treatments are being trialed to determine whether the impacts may be reduced within new infection sites.

Because most of Lake Johnston Nature Reserve is above 800 metres, *Phytophthora cinnamomi* is generally not likely to be a significant pathogen in the Reserve. However, below this altitude it can be active in open vegetation particularly if north facing or in exposed gravels subject to solar warming. Nearby, lower altitude areas already have *Phytophthora cinnamomi* infections in a number of places, including on the main access road to Mt Read. The threat to the Reserve could become an issue if the higher end predictions for global warming provide the conditions for *Phytophthora cinnamomi* to increase its altitudinal range.

Dieback has occurred in a range of native heath and conifer species in the Pine Lake area of the Central Plateau. The cause, source and vector of the Pine Lake dieback has not been identified. Although two *Phytophthora* species are known to be present at Pine Lake, which is above 800 metres, and one of the species present at Pine Lake is a known pathogen in native vegetation in Western Australia, research results have not demonstrated their pathogenicity at Pine Lake.

Care must be taken to avoid spreading *Phytophthora* species and other soil borne pathogens into the Reserve. If any new infection is identified, it may be practical, with swift action, to attempt to control disease development with chemicals.

To assist in disease management, Pasminco, the current holders of mining lease 28M/93, will place conditions on the issue of keys for gaining access through the mining lease. this will help ensure that plant disease program actions are reasonably addressed.

**Objectives**
- The objectives of plant disease management are to:
  - avoid the introduction of *Phytophthora* species and other plant pathogens into the Reserve;
  - limit the spread of any *Phytophthora* species or other plant pathogens found to be already in the Reserve; and
  - educate all visitors in plant disease prevention hygiene measures.

**Policies**

- All practicable steps will be taken to prevent the introduction of *Phytophthora* or other plant pathogens into the Reserve.

- Prior to entering the Reserve, all visitors will be required to wash with water all personal items which may have been in contact with soil until those items are free of soil.

- All visitors will be required to wear sterile footwear at all times within the Reserve boundary.

- In the case of tour group visitors, the tour operator will provide and require all tour group visitors to wear safe, sterile footwear at all times within the Reserve boundary.

- All visitors will wash with water all personal items which may have been in contact with soil until those items are free of soil.

- In the case of tour group visitors, the tour operator will require and be responsible for all tour group visitors washing with water all personal items which may have been in contact with soil until those items are free of soil.

- Except for fire or other management emergencies, before entering the Reserve, large items, vehicles and machinery will be washed down with water until they are soil free, according to the protocols set out in the disease management program.

- Vehicular track construction and maintenance within the Reserve will only be undertaken when the track and drains are dry.

- Any imported soil, fill or crushed rock used in any construction project in the Reserve will be obtained from sites that are inspected and deemed by the Parks and Wildlife Service to be free of evidence of plant diseases, using *Phytophthora*-free machinery.

- Where direct seeding is not used, all plants used in planting works within the Reserve will be propagated, in *Phytophthora*-free soil or other medium from certified *Phytophthora* free nurseries.

- Fungicide treatments will be required for equipment used in direct scientific sampling to prevent infection transfer.

**Actions**

- Develop and implement a disease management program to exclude *Phytophthora* species and other plant pathogens from the Reserve, in cooperation with adjacent land managers and users.

- Undertake periodic surveys to monitor the disease status of the Reserve.

- Inform visitors of the plant disease threat to the Reserve.

- Rigorously enforce the requirements of the disease management program.

- Monitor the disease management program for effectiveness and adjust it if necessary.

### 4.3 Soil Conservation and Erosion Control

Erosion along roadside drainage lines could serve as a vector for the spread of plant diseases. Soils in the area are susceptible to erosion if disturbed. Seriously exposed and eroding alpine areas of the Reserve and adjacent areas have been created by past fires.

**Objective**

- The objective of soil conservation and erosion control in the Reserve is to:
  - prevent erosion and rehabilitate damaged areas.

**Policies**
Erosion hazard and status assessments will be made where any ground disturbance or soil exposure is proposed.

Land rehabilitation and stabilisation will be carried out on the basis of a prior geomorphological assessment.

Disease risk will be assessed and minimised before any rehabilitation, revegetation or other stabilisation methods are implemented.

**Actions**

- Rehabilitate, revegetate or otherwise stabilise disturbed or eroding areas, including unwanted vehicular trails.
- Construct roadside drains and culverts on the section of vehicular track to be retained in the Reserve so as to direct runoff to the western side of the track.

## 4.4 Managing Visitor Impacts

Rubbish has been found in the Reserve, including in the vicinity of the Huon pine stands.

Without strict controls on pre-visit hygiene, on-site behaviour and access locations, visitors pose a threat to the sustainability of the values for which the Reserve was created.

**Objectives**

- The objectives for managing visitor impacts are to:
  - protect, maintain and monitor environmental and heritage values; and
  - perpetuate the Reserve in a state that is valued by the community.

**Policies**

- All visitors, irrespective of the purpose of their visit, will comply with the relevant requirements of this management plan.
- Visitor numbers, services and activities will be limited to those which are ecologically sustainable.

- The best available and practicable technology will be used to protect environmental quality from human impacts.
- Visitors will not be permitted unless they are part of a licensed tour group operation or are on an approved special interest, scientific or management visit (see 5.3).
- All waste material and rubbish must be removed from the Reserve by those responsible for creating it.
- Only if required for approved scientific or management purposes, transportable, self contained chemical toilets may be permitted within the Reserve.
- Except for approved scientific or management purposes, no overnight stays will be permitted in the Reserve.

**Actions**

- Inform all visitors of, and require them to observe all minimal impact requirements for visits to the Reserve.
- Ensure all visitors observe the requirements of the disease management program.
- Without exception, enforce the authority conditions of licensed tour operators and special interest and scientific programs.
- Require management staff to observe the same impact management requirements applied to licensed tour, special interest, and scientific visitors.

## 4.5 Managing Development Works

Development works can include manipulative research, construction, relocation or repair of a walking or vehicular tracks, erosion control works, and erection of signs or gates. Note that more specific details about managing aspects of development works can be found throughout this plan.
Objectives

- The objectives of managing development works are to:
  - avoid or minimise the impact of development works on Reserve values; and
  - foster public confidence in approved developments.

Policies

- In the Reserve, facilities, services and other development will be limited to that provided for in this management plan, according to the zone in which it is to occur.

- Assess all proposals for any development, landscape modification, research, management or maintenance work involving any ground breaking, structural disturbance, or environmental manipulation of any kind in accordance with procedures approved by the Director.

- Disease risk will be assessed and minimised before any development works are implemented.

Actions

- Confirm statutory requirements for planning and building approval before proceeding.
5 Visiting the Reserve

5.1 Understanding the Reserve Visit

Prior to this plan, there were three broad categories of visitors to the Reserve; scientific researchers, management staff and illegal visitors. In addition to scientific and management purposes, licensed tour groups, and, on infrequent occasions, special interest groups approved by the Director, may now visit the Reserve in accordance with the management plan.

Visitors either walk or drive into the Reserve.

**Objectives**
- The objectives of understanding the Reserve visit are to:
  - understand visitor pressures on the Reserve; and
  - provide the basis for effective visitor management.

**Policies**
- Visitor research will be focussed on improving the inventory and understanding of visitor numbers and characteristics, behaviour, needs and expectations, and assisting visitor management.

**Actions**
- Collect and record the number, time and purpose of visitors.
- Monitor and investigate visitor pressures on the Reserve.

5.2 Interpretation and Education

Visitors are increasingly looking to enjoy, understand and appreciate their visit through high standard presentation of information, interpretation and education. Therefore, interpretation and education are critical to the delivery of quality Reserve experiences, as well as fostering an appreciation of and caring attitude towards the Reserve (Department of Tourism, Sport and Recreation, 1994).

**Objectives**
- The objectives of interpretation and education for the Reserve are to:
  - encourage pre-visit awareness of the significance and vulnerability of the Reserve’s features and values;
  - reveal the diversity and values of the environmental and heritage features of the Reserve;
  - realise the educational values of the Reserve;
  - canvas issues to be confronted in managing the Reserve;
  - increase public awareness of safety issues; and
  - inform visitors of Reserve etiquette and minimal impact practices.

**Policies**
- Licensed tour operators will be required to provide high quality visitor information and interpretation to their clients.
- Interpretation programs and facilities will limited to the Controlled Visitor Access Zone.
- Teaching visitors and the general community about the Reserve’s environmental and heritage values will be the focus of interpretation.
- While off-site education and interpretation can take a variety of forms, the emphasis of on-site interpretation and education will be on high quality oral presentation by a trained guide.
**Actions**

- Establish a photographic archive of both still and video footage of the Huon pines and other significant features of the Reserve to prevent unnecessary visits for photographic purposes.
- Require people permitted to visit the Reserve for photographic purposes to donate copies of all photographic material to the archive.
- Prepare interpretation and education material for the Reserve.
- Provide prospective Reserve visitors with pre-visit information.

**5.3 Access**

**Objectives**

- The objectives for access to and within the Reserve are to:
  - restrict general right of access;
  - allow controlled access for scientific, infrequent special interest, management and licensed tour group visitors to the reserve;
  - designate the tour group visitor carrying capacity; and
  - protect Reserve values by concentrating and limiting visitor arrival points, travel routes and circulation areas to designated locations and circumstances.

**Policies**

- In accordance with Section 25 of the National Parks and Wildlife Act 1970, and by virtue of this management plan, the Lake Johnston Nature Reserve is declared to be a reserve to which the public has not a general right of access. A reserve which is the subject of such a declaration is termed a "restricted area".
- No person may enter or remain in the Reserve except in accordance with the conditions of a licence or an authority issued by the managing authority, or unless accompanied by a Ranger or other person duly authorised by the Director.
- Unless otherwise stated in this plan, the term "visitor" will apply to all visitors.

- Except for essential management purposes, no visitors will be permitted during periods of high fire danger.
- Except for essential management purposes, no visitors will be permitted during weather conditions (for example snow conditions) which, in the opinion of the District Manager or Senior Ranger, make difficult the observance or enforcement of plant disease hygiene or fire safety requirements, or represent a threat to personal safety.
- Licensed tour groups will be limited to a maximum of 8 persons per visit, including at least one guide in that number. Only one such group will be allowed in the Reserve at any one time.
- In the first two years of operation of licensed tour group visits, a maximum of four licensed tour group visits will be permitted into the Reserve on any one day, provided total tour group visitor numbers, excluding guides, do not exceed 700 in each year.
- If monitoring in the first two years of operation does not indicate any adverse effects, a maximum of four licensed tour group visits will be permitted into the Reserve on any one day, provided total tour group visitor numbers, excluding guides, do not exceed 1400 in each year in years three to five inclusive.
- The size of group, frequency of trips and total annual number of licensed tour group visitors may be decreased or cancelled completely at any time if there is clear evidence, attributable to tour groups, of impacts on the Reserve contrary to the objectives and other provisions of this management plan.
- The size of group, frequency of trips and total annual number of licensed tour group visitors will be reviewed five years after commencement of licensed tour group visits, and at that time the carrying capacity may be increased if the available evidence shows that the objectives of the management plan are being and can continue to be achieved and all other provisions of the management plan are able to be observed.
- The licensed operator and any tour staff will be required to strictly supervise the behaviour of tour clients. Any failure to do so which could compromise reserve
values will result in cancellation of the licence.

- Scientific researchers and special interest groups will be required to strictly supervise the behaviour of the members of their party and comply with any directions of an authorised guide. Any failure to do so which could compromise reserve values will result in cancellation of the authority or licence to enter the Reserve.

5.3.1 Air Access

There are no aircraft landing grounds in the Reserve.

Policies

- Airdrops within the Reserve will only be permitted for management or emergency purposes.

- Except in an emergency, helicopters will require a permit to land or take off in the Reserve, as required by the National Parks and Reserves Regulations 1999.

5.3.2 Vehicular Access

The northern boundary of the Reserve can be reached along an access road, known as the Mt Read Road, built to service Telstra communications equipment on Mt Read (see Map 1). This road connects to the Williamsford road which links to the Murchison Highway and Rosebery. The road travels through mining lease 28M/93. It lies outside the Reserve and at its upper end forms one boundary of it. Transfield Maintenance is now Telstra's agent for the management and maintenance of the road. In the north-west corner of the Reserve, a short section of the boundary of the Reserve is defined by a four wheel drive road. This road lies outside the Reserve and also provides a four-wheel drive vehicle connection to Williamsford through the mining lease 28M/93. The Lake Johnston road, a disused, dead end four-wheel drive mining exploration track, leads into the Reserve, roughly paralleling the western boundary, and ending in a dead end just south of the Reserve.

None of the roads or tracks is a public road and there is no obligation to allow public access. The Mt Read and Hercules roads traverse mining lease 28M/93 and both have gates which are normally kept locked by Pasminco. The roads are appropriately signed to limit access. Road construction and maintenance is limited to that necessary for the private purpose for which the roads were constructed.

The Mt Read road is negotiable by two wheel drive vehicles, but four wheel drive vehicles are used to safely access the area under frosty or light snow conditions. The other vehicular tracks are only suitable for four-wheel drive vehicles. All roads are impassable during heavy snow conditions.

Because the Mt Read Road is a private road, any licensed tour operator using the road may need to indemnify Telstra or their agent Transfield Maintenance prior to using it, and also contribute to the upkeep of the road. Indemnity arrangements may also be required by Pasminco. It is important to stress that irrespective of access provisions to the Reserve, access through mining leases is not guaranteed and is not covered by this management plan.

The Parks and Wildlife Service is responsible for vehicular tracks within the Reserve.

Unauthorised access into the area by vehicles, including trail bikes, occasionally occurs.

Policies

- Only management vehicles, or vehicles approved for scientific, infrequent special interest, or licensed tour operator use will be permitted in the Reserve.
• Public vehicular access within the Reserve will not be permitted.

• Before construction of any new vehicular tracks, or re-routing of existing ones (see Appendix 5), survey the proposed route for disease risk, habitat and species significance, and heritage significance.

• Vehicular track development and maintenance will accord with the prescriptions of this plan.

**Actions**

• Liaise with Telstra on the use of the Mt Read road for scientific, management, or licensed tour group access to the Reserve.

• Liaise with Pasminco Australia Ltd on access through the mine lease for scientific, management, or licensed tour group access to the Reserve.

• Permanently close and rehabilitate the old Lake Johnston four wheel drive track in the Reserve (below the Controlled Visitor Access Zone) to walking track access only.

• Permanently close any other vehicular tracks not required for management or controlled visitor use.

• Ensure vehicular tracks that are retained are of a sufficient standard for their purpose.

• Gate or otherwise restrict public access to vehicular tracks retained within the Reserve.

**5.3.3 Walking Access**

There are no constructed walking tracks in the Reserve, although a number of foot pads are discernible. Unauthorised walking access from any number of tracks which criss-cross the area occasionally occurs.

**Policies**

• Controlled, directed and strictly limited foot access for scientific, management, infrequent special interest, or licensed tour group purposes may be permitted in the Controlled Visitor Access Zone, and for scientific or management purposes in the Controlled Scientific Zone. This access may include raised boardwalks or platforms.

• Prior to development of a walking access route in Stage 2 of the Controlled Visitor Access Zone, a site plan or similar environmental and heritage effects assessment will be released for public comment.

• Walking track access within the Controlled Visitor Access Zone will not be permitted within ten metres of any living Huon pine or other significant feature that is within the Controlled Scientific Zone.

• Impacts on any areas of dead Huon pine within the Controlled Visitor Access Zone will be assessed before any walking access route through Stage 2 of the Zone will be approved.

• Before designation of any new foot pads or construction of any new walking tracks, or re-routing of existing footpads or walking tracks, survey the proposed route for disease risk, habitat and species significance, and heritage significance.

• Strict plant disease hygiene and fire prevention standards will be required and observed for workers, materials, tools and machinery during the construction of any boardwalk or other visitor facilities.

• Walking track development and maintenance will accord with the prescriptions of Section 4.5.

• Exact track locations and standards will be determined, and construction undertaken, using appropriate guidelines of the Walking Track Management Manual (Blamey, 1987) and/or the Walking Track Management Strategy (Parks and Wildlife Service, 1998) and according to this plan and Appendix 5.
**Actions**

- Maintain and clearly delineate all designated walking tracks or foot pads.

**5.4 Providing Facilities and Services**

Although the Reserve is principally for the protection of very significant environmental values, these same values undoubtedly are of interest to some tourist visitors. Controlled, limited licensed tour visits which respect and avoid impacting upon the Reserve’s inherent values will be possible, subject to controls. Such visits will require vehicle and pedestrian management and information and interpretation. Scientific use of the Reserve may also require similar facilities.

Because of its inherent values, the Reserve does not need invented attractions. Inappropriate development could have a detrimental impact on the education and interpretation character of the Reserve, both in very obvious and immediate ways, and in more subtle, incremental ways.

The challenge for management is to provide facilities and services in a co-ordinated way, without destroying the values which attract visitors in the first place. To maintain these values, the type, location and level of facilities and services has to be determined and made explicit.

**Objectives**

- The objectives of providing visitor facilities and services are to:
  - provide opportunities for contemplation, enjoyment and educational experiences of the values of the Reserve;
  - enrich visitor experiences of the Reserve;
  - encourage understanding of and support for the Reserve by highlighting and presenting its values;
  - minimise impacts on Reserve values;
  - promote sound, sustainable, environmental behaviour and practices;
  - contribute directly to meeting the costs of researching, protecting, and managing the Reserve; and
  - provide economic benefit to the community.

While flexibility in response to visitor needs, budgetary circumstances and protection of Reserve values must be maintained, the general policies for development of visitor facilities and services are set out below.

**Policies**

- Provision of visitor facilities and services will conform with and contribute to the realisation of this management plan.

- All visitor activity will accord with any requirements and codes established by the Parks and Wildlife Service for sustainable environmental practices and behaviour and protection of Reserve values.

- Consistent with this plan, visitor facilities and services will be provided, only in the Controlled Visitor Access Zone.

- In the Controlled Visitor Access Zone, visitor facilities and services will accord with this management plan and Appendix 5.

**5.4.1 Controlled Visitor Access Zone**

While the exact provision and extent of visitor and management facilities depends on funding, this Zone is the only location for development of services and facilities for visitors to the Reserve.

A proposal to develop access for viewing the Huon pines has been suggested.

**Policies**

- Licensed tour groups and infrequent special interest visitors will be permitted in this Zone only, and limited to visits during daylight hours.

- If prior approval is obtained in writing from the Director, overnight stays by management or scientific staff may be permitted in this Zone.

- Facilities in this Zone may include, and will not exceed a small interpretive sign, vehicle access on the existing or realigned four wheel drive track, vehicle parking and turning area, and walking tracks, boardwalks, platforms or similar.

- Prior to provision of any facilities and services in Stage 2 of the Controlled Visitor Access Zone, a site plan or similar environmental and heritage effects assessment for Stage 2 will be released for public comment.

- Provision of Stage 2 facilities or services will be assessed in the site plan, among other things, on the basis of:
  - potential impacts on Reserve values;
  - actual visitor numbers and potential demand.

- Construction and maintenance in the Zone will be sufficient to contain the impact of the permitted number of visitors.

Actions

- Prepare a protocol for scientific and management access and activity in this Zone.

- Monitor for environmental impacts occurring within or intruding into the Zone.

5.4.3 Assessing Visitor Access Proposals

Policies

- Proposals to provide visitor access facilities or services in Lake Johnston Nature Reserve will be considered if they:
  - accord with the management plan;
  - ensure the viability, diversity, and values of environmental features and processes are not damaged;
  - adopt environmentally sustainable operating practices and use environmentally “best practice” goods and technologies;
  - explain and enforce the principles of minimal impact on Reserve values to clients;
  - contribute to any external costs (for example road upgrading or boardwalk construction) resulting from the proposal; and
  - are sustainably achievable within the realistic capacity of management resources.

- All facilities and services in the Reserve will adopt environmental “best practice” methods for:
  - plant disease hygiene control
  - fire prevention;
  - water runoff management;
  - vehicle use;
  - storage and disposal of solid and liquid waste.

- Depending on the proposal, additional assessment guidelines and criteria may be required.

- Facilities and services proposals will provide a clearly demonstrated benefit to the Tasmanian community.

- All licensed access proposals will submit a detailed business and financial plan showing at least a three year projection of operations, demonstrating financial viability while according with this management plan.
Any publicly funded financial, infrastructure, managing authority services, or environmental resource subsidy of a licensed access proposal will be made explicit and public.

Licensed tour operations providing guided visitor access to the Reserve will make an identifiable financial contribution to a fund (in the order of magnitude similar to annual bursaries currently provided to Honours students) for research within the Reserve, or the conducting of conferences or publication or dissemination of research results.

**Actions**

- Develop and disseminate assessment guidelines and criteria for visitor access proposals, including requirements and codes of sustainable environmental practices and behaviour.

- Ensure all applicable statutory requirements and approvals are met or obtained.
6 Involving The Community

6.1 Community Support

Community support for the Reserve is very important.

Objectives

The objectives of fostering community support are to:

- develop community appreciation of and support for Reserve values;
- promote a positive image of the Reserve and its contribution to conservation of features of world significance.

Policies

- Relevant people, communities and groups will be consulted when their interests may be affected.

Actions

- Develop processes and opportunities for consulting with people interested in management of the Reserve.

6.2 Working with Neighbours

The Reserve is fringed by State forest and mining leases. Prior to declaration of the Reserve, an interim management plan for the area, including that of the Reserve, was developed co-operatively by a range of land owners, land managers and users. The continuing support and advice of these groups can contribute to Reserve management.

Objectives

The objectives of working with neighbours are to:

- take account of concerns of neighbours in managing the Reserve;
- encourage conservation and sound land management practices on lands adjoining the Reserve; and
- enlist cooperation of neighbours in conserving Reserve values.

Policies

- Neighbouring land owners and land managers will be consulted when their interests may be affected.
- Management agreements may be developed with neighbours.
- Access arrangements through neighbouring lands will be developed with the agreement of neighbours.
- Land management practices which require off-reserve or cross tenure implementation to protect natural and cultural values will be developed cooperatively with neighbours.

Actions

- Regularly liaise and develop good working relations with adjacent land owners and land managers on management issues and projects of common interest.
- If necessary, formalise mechanisms for liaising with neighbours.
7 Other Issues

7.1 Boundaries

The boundary of the Lake Johnston Nature Reserve does not reflect the boundaries of the catchments in which it lies. This, in the main has significance for management of plant disease pathogens where water borne vectors are an issue.

- If the opportunity arises, incorporate within the Reserve any areas which will improve protection of important natural or heritage values, protect the integrity of the Reserve, or assist in more effective management.
- If the opportunity arises, incorporate within the Reserve any areas which will provide opportunities for or improve presentation of the Reserve and provision of visitor services and facilities.

7.2 Licences and Authorities

Objectives

- The objectives of licences and authorities are to:
  - provide efficient high quality facilities and services to the public;
  - manage and control uses and activities not undertaken by the managing authority;
  - contribute to recovery of costs arising from licensed or authorised uses; and
  - ensure Reserve values are protected.

Policies

- All licences and authorities will be consistent with the goals, objectives, and prescriptions of this management plan.
- Subject to the National Parks and Wildlife Act 1970 and this management plan, licences to provide guided, controlled visitor access within the Reserve may be issued for the Controlled Visitor Access Zone only.
- To obtain a licence to take tour groups into the Reserve, a licensee and all guides who will enter the Reserve will be required to undergo interpretation, impact prevention, and site use training at their expense, to a standard approved by the managing authority.
- Subject to the National Parks and Wildlife Act 1970 and this management plan, authorities for scientific research within the Reserve may be issued.
- Subject to the National Parks and Wildlife Act 1970 and this management plan, authorities may be issued by the Director for infrequent, special interest visits to the Controlled Visitor Access Zone, in the company of a guide or guides approved by the Director.
- Consistent with this plan, a site plan or similar environmental and heritage effects assessment may be required before licence or authority proposals are considered.
- Compliance with the terms and conditions of licences will be monitored and reviewed prior to any renewal.
- Failure to comply with any requirement of a licence or authority which could compromise reserve values will result in immediate revocation of it.
- Licence and authority conditions will explicitly provide for postponement or cancellation of the operation of the licence or authority, if, in the opinion of the Director, a serious environmental threat to the Reserve is identified.
- Licence and authority conditions will include a non-smoking requirement within the Reserve.

7.3 Statutory Powers

- Mineral Resources Tasmania may deal with any proposed mining activity or mining lease matters for mining lease ML28M/93 in accordance with the Mineral Resources Development Act 1995, provided that there is no intrusion into
or environmental impact on the Reserve to 50 metres below ground.

### 7.4 Research and Monitoring

Research and monitoring assists understanding and conservation of the values of the Reserve and contributes to effective management.

Because of the significant values of the Reserve, there is considerable interest in undertaking scientific research there. Unless research efforts are carefully controlled and coordinated, there is potential to cause unwarranted impacts on the Reserve.

#### Objectives

- The objectives of undertaking and managing research in the Reserve are to:
  - improve the inventory and understanding of environmental and heritage features and processes;
  - use the Reserve as a scientific reference area;
  - monitor the natural rates and magnitudes of change;
  - assess impacts, including long term cumulative changes caused by development or use (including research) of the Reserve;
  - assist achievement of the management objectives for the Reserve;
  - assess the effectiveness of management of the Reserve; and
  - assist and improve management of the Reserve.

#### Policies

- All research and monitoring proposed in this management plan will depend on availability of funding and other necessary resources.
- Research and monitoring programs will be developed and implemented in accordance with policies and procedures approved by the managing authority.
- All proposed research or monitoring in the Reserve will require written approval of detailed study proposals and methods before research begins, and will be subject to this management plan.
- Researchers will submit to the managing authority not less than three copies of all work produced during the period of the research. The managing authority will determine requirements for the form of submission, its timing, confidentiality, and any other matters.
- Authorities for the collection of research material within the Reserve will not be issued where the managing authority determines that it is possible and appropriate to collect the material outside the Reserve.
- Only research that does not have any appreciable long term adverse effects on the environmental, heritage, or aesthetic values of the Reserve will be permitted.
- The approval of the Tasmanian Aboriginal community will be obtained for any research involving Aboriginal heritage.
- Research will be encouraged which improves the inventory and understanding of, or assists management of:
  - the environmental features and processes of the Reserve;
  - visitors, including numbers, characteristics, behaviour, needs and expectations.
- Use and development practices will be monitored for their effects on Reserve values, and where necessary, modified.
- Any cumulative changes in Reserve values will be documented at regular intervals.
- The efficacy of management practices in the Reserve and the effects of
management actions on Reserve values will be monitored, and where necessary, modified. As a minimum, base evaluation on the performance indicators set out in Appendix 1.

- Relevant, additional monitoring and evaluation procedures developed during the period of the plan may be applied when evaluating management of the Reserve.

**Actions**

- Develop and implement research protocols which define the scope of scientific programs and establish limits to and rationalise collection and removal of material, define collection, coring and other research intervention procedures, specify remedial requirements and designate ownership, storage and access to collected materials and data.

### 7.5 Administration

Administratively, the Reserve is part of the West Coast District of the Parks and Wildlife Service, managed by the District Manager West.

**Objectives**

- The objectives of administration of the Reserve are to:
  - coordinate and integrate management and implementation of the management plan;
  - ensure management responsibilities are efficiently and effectively carried out;
  - ensure public safety and prompt response in emergencies; and
  - enforce the management plan and relevant Acts and Regulations.

#### 7.5.1 Implementation

**Policies**

- The prescriptions of this plan will be subject to the provision of funding and other resources sufficient to meet them, and may be prioritised by the Director of National Parks and Wildlife at the Director’s discretion according to resource availability.

- To coordinate effective implementation of this management plan, a rolling implementation program of at least three years duration, and linked to service agreements, will be developed.

- The implementation program will identify:
  - all development and other works planned,
  - scientific studies required,
  - those responsible for each stage of implementation,
  - the anticipated costs,
  - the staff requirements, and
  - ongoing maintenance and monitoring requirements.

- The implementation program will conform with this management plan.

**Actions**

- Train staff to understand and implement the management plan.

- Review the implementation of the management plan annually and revise the implementation program if necessary. Base any revision on analysis of past progress and incorporate newly identified requirements. Add a further year's program at each annual review.

- Annually evaluate the outcomes of management against the objectives of the management plan.

#### 7.5.2 Search and Rescue, First-Aid

Tasmania Police and the State Emergency Service have primary responsibility for all search and rescue within the Reserve.

**Policies**

- Cooperate with Tasmania Police and State Emergency Services in search and rescue operations.
• Establish a risk management system that provides for regular identification, inspection, reporting and amelioration of existing and potential risks to safety.

7.5.3 Enforcement

Policies

• Within the Reserve, authorised staff of the Parks and Wildlife Service, and Tasmania Police, will be responsible for enforcing the provisions of the National Parks and Wildlife Act 1970, the Aboriginal Relics Act 1975, the National Parks and Reserves Regulations 1999, the Wildlife Regulations 1971, the Aboriginal Relics Regulations 1978, and any other Acts for which staff may be authorised.

• Other law enforcement will be the responsibility of Tasmania Police.
## Glossary

**Biodiversity (biological diversity)** means the variety of life forms: the different plants, animals and micro-organisms, the genes they contain, and the ecosystems they form. It is usually considered at four levels: genetic diversity, species diversity, ecosystem diversity and community diversity.

**Conservation** means all the processes and actions of looking after a place so as to retain its significance, always including protection, maintenance and monitoring.

**Earth processes** means the interactions, changes and evolutionary development of geodiversity over time.

**Geodiversity (geological diversity)** means the range or diversity of geological (bedrock), geomorphological (landform) and soil features, assemblages, systems and processes which exist naturally.

**Indigenous species** means a species that occurs at a place within its historically known natural range and that forms part of the natural biodiversity of a place.

**Introduced species** means a translocated or alien species occurring at a place outside its historically known natural range as a result of intentional or accidental dispersal by human activities.

**Natural integrity** means the degree to which a natural system retains its condition and natural rate of change in terms of size, biodiversity, geodiversity and habitat.

**Natural landscape** means large, relatively undisturbed area with topographic and catchment integrity where natural processes continue largely unmodified by human intervention.

**Protection** means taking care of a place by maintenance and by managing impacts to ensure that significance is retained.

**Threatened species** means a species listed in the Schedules of the *Threatened Species Protection Act 1995*. 

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity</td>
<td>Variety of life forms: plants, animals, micro-organisms, genes, ecosystems. Considered at four levels.</td>
</tr>
<tr>
<td>Conservation</td>
<td>All processes and actions to retain significance, including protection, maintenance, and monitoring.</td>
</tr>
<tr>
<td>Earth processes</td>
<td>Interactions, changes, and evolutionary development of geodiversity.</td>
</tr>
<tr>
<td>Geodiversity</td>
<td>Range or diversity of geological, geomorphological, soil features, assemblages, systems, and processes naturally.</td>
</tr>
<tr>
<td>Indigenous species</td>
<td>Species occurring within historically known natural range.</td>
</tr>
<tr>
<td>Introduced species</td>
<td>Alien species outside historically known natural range due to human activities.</td>
</tr>
<tr>
<td>Natural integrity</td>
<td>Degree to which a natural system retains condition and rate of change.</td>
</tr>
<tr>
<td>Natural landscape</td>
<td>Large, undisturbed area with topographic and catchment integrity.</td>
</tr>
<tr>
<td>Protection</td>
<td>Care of a place through maintenance and managing impacts.</td>
</tr>
<tr>
<td>Threatened species</td>
<td>Listed species in the <em>Threatened Species Protection Act 1995</em>.</td>
</tr>
</tbody>
</table>
References

BACON, C. A., 1992; Management of the flora of the Mt Read RAP; Report Mineral Resources Tasmania 1992/30, Hobart


FULTON, W., 1990; Tasmanian Freshwater Fishes; University of Tasmania, Hobart.

GOVERNMENT OF TASMANIA, 1997; State Policy on Water Quality Management 1997; Printing Authority of Tasmania, Hobart.


MARQUIS-KYLE, P., & WALKER M., 1992; The Illustrated Burra Charter, Making good decisions about the care of important places; Australia ICOMOS Inc, Sydney.

MINERAL RESOURCES TASMANIA, PARKS AND WILDLIFE SERVICE, ENVIRONMENT TASMANIA, FOREST SCIENTISTS, TOURISM TASMANIA, GOLDFIELDS TASMANIA LTD, PASMINCO MINING ROSEBERY, PASMINCO EXPLORATION, TELSTRA, & HYDRO-ELECTRIC CORPORATION, 1997; Interim Management Plan for the Mt Read RAP; Tasmanian Geological Survey Record 1997/04, Hobart.


PARKS AND WILDLIFE SERVICE GIS SECTION, 1999; GTSpOT Database; unpublished data, Department of Primary Industries, Water and Environment.

ROUNSEVELL, D. E., TAYLOR, R. J., & HOCKING, G. J., 1991; Distribution records of native terrestrial mammals in Tasmania; Wildlife Research, 18; 699-717.


THOMAS, D., 1979; Tasmanian Bird Atlas; University of Tasmania, Hobart.

TOURISM, SPORT & RECREATION, DEPT OF, 1994; Ecotourism: Adding value to tourism in natural areas; A discussion paper on nature based tourism, Department of Tourism, Sport and Recreation, Hobart.
NOTE:

For additional references on the Reserve or associated scientific matters, refer to the Bibliography in MINERAL RESOURCES TASMANIA, PARKS AND WILDLIFE SERVICE, ENVIRONMENT TASMANIA, FOREST SCIENTISTS, TOURISM TASMANIA, GOLDFIELDS TASMANIA LTD, PASMINCO MINING ROSEBERY, PASMINCO EXPLORATION, TELSTRA, & HYDRO-ELECTRIC CORPORATION, 1997; Interim Management Plan for the Mt Read RAP; Tasmanian Geological Survey Record 1997/04, Hobart.
Appendix 1

Performance Indicators

Performance indicators provide a guide for evaluating if the management plan has been implemented, and if the management objectives of the plan have been achieved. The following performances indicators will apply.

- Stands of living Huon pine within the Reserve are healthy and of at least the same extent as at the time of approval of this plan.
- The natural significance and diversity of flora and fauna in the Reserve is equal to or improved upon that which occurred at the commencement of the plan.
- The significant natural landscapes and sites of geoconservation significance in the Reserve are intact or restored.
- Sites and areas of Aboriginal heritage are protected, managed and interpreted in cooperation with the Aboriginal community.
- Sites and areas of historic heritage are protected, managed and interpreted.
- Damaged or degraded areas of the Reserve have been stabilised or rehabilitated and restored.
- A fire management program for the Reserve has been prepared and implemented.
- Reserve values and neighbouring lands have not been adversely impacted upon by fire.
- A disease management program has been prepared and implemented.
- *Phytophthora* and other plant diseases have not spread into or, if already present, have not spread more widely within the Reserve.
- Weeds within the Reserve are controlled or have been eradicated.
- Research results are available which improve upon the knowledge of the Reserve.
- Research and monitoring results are available which assist effective management decision making on conservation and management of the Reserve and its visitors.
- Community interest in and comment upon the state of the Reserve and its management is regular and predominantly favourable.
- Visitor services and facilities identified in the management plan have been developed in accordance with it.
- Visitor impacts on Reserve values are at ecologically sustainable levels for the zone in which they occur.
- Licensed tour operations are conducted in accordance with the management plan.
Appendix 2

Flora Observed in the Lake Johnston Nature Reserve Area
(modified from Bacon, 1992)

DICOTYLEDONAE

APIACEAE

Actinotus moorei  Moore's Alpine Fugitive
Xanthosia dissecta  Cut-leaf Xanthosia

ARALIACEAE

Pseudopanax gunnii  Native Ivy Bush

ASTERACEAE

Abrotanella scapigera  Cushion Plant
Celmisia astelioria  Silver Daisy
Celmisia saxifraga  Small Snow Daisy
Cotula filicula
Erigeron sp.
Erigeron stellatus  Fleabane
Ewartia cates  Star Fleabane
Ewartia meredithiae  Meredith's Ewartia
Ewartia planchonii  Ewartia
Helichrysum milliganii  Snow Everlasting
Helichrysum pumilum  Tiny Alpine Everlasting
Olearia ledifolia  Kerosene Bush
Olearia persoonioides  Geebung Daisy-bush
Olearia pinifolia  Pine-leafed Daisy
Ozothamnus rodwayii
Pterygopappus lawrencii
Senecio leptocarpus  Cushion Plant

CUNONIACEAE

Anodopetalum biglandulosum  Horizontal
Bauera rubioides  Bauera, Wiry Bauera

DONATIACEAE

Donatia novae-zelandiae  Cushion Plant

DROSERACEAE

Drosera arcturi  Alpine Sundew
Drosera pygmaea  Dwarf Sundew
### ELAEOCARPACEAE

**Aristotelia peduncularis**  
Heart Berry

### EPACRIDACEAE

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comber’s Archeria, Pink Mountain Heath</td>
<td>Archeria comberi</td>
</tr>
<tr>
<td>Archeria</td>
<td>Archeria comberi</td>
</tr>
<tr>
<td>Archeria</td>
<td>Archeria eriocarpa</td>
</tr>
<tr>
<td>Archeria</td>
<td>Archeria hirtella</td>
</tr>
<tr>
<td>Stout Archeria</td>
<td>Archeria serpyllifolia</td>
</tr>
<tr>
<td>Prostrate Cheese Berry</td>
<td>Cyathodes dealbata</td>
</tr>
<tr>
<td>Cheese Berry</td>
<td>Cyathodes glauca</td>
</tr>
<tr>
<td>Pink or Crimson Berry</td>
<td>Cyathodes juniperina</td>
</tr>
<tr>
<td>Pink Mountain Berry</td>
<td>Cyathodes parvifolia</td>
</tr>
<tr>
<td>Diode</td>
<td>Cyathodes petiolaris</td>
</tr>
<tr>
<td>Milligan’s Dragonleaf</td>
<td>Dracophyllum milliganii</td>
</tr>
<tr>
<td>Heath Cushion Plant</td>
<td>Dracophyllum minimum</td>
</tr>
<tr>
<td>Stragglng Heath</td>
<td>Epacris corymbiflora</td>
</tr>
<tr>
<td>Gunn’s Heath</td>
<td>Epacris gunnii</td>
</tr>
<tr>
<td>Sinuous or Snake Heath</td>
<td>Epacris serpyllifolia</td>
</tr>
<tr>
<td>Mountain Beard-heath</td>
<td>Leucopogon hookeri</td>
</tr>
<tr>
<td>Golden Wood</td>
<td>Monotoca glauca</td>
</tr>
<tr>
<td>Round-leaf Monotoca</td>
<td>Monotoca submutica</td>
</tr>
<tr>
<td>Carpet Heath</td>
<td>Pentachondra pumila</td>
</tr>
<tr>
<td>Climbing Heath</td>
<td>Planocarpa sulcata</td>
</tr>
<tr>
<td>Milligan’s Richea</td>
<td>Prionotes cerinthoides</td>
</tr>
<tr>
<td>Pandani</td>
<td>Richea milliganii</td>
</tr>
<tr>
<td>Scoparia, Alpine Richea</td>
<td>Richea pandanifolia</td>
</tr>
<tr>
<td>Mountain-top or Summit Richea</td>
<td>Richea scoparia</td>
</tr>
<tr>
<td>Pink Swamp Heath</td>
<td>Sprengelia incarnata</td>
</tr>
<tr>
<td>Sweet-scented Trochocarpa</td>
<td>Trochocarpa cunninghamii</td>
</tr>
<tr>
<td></td>
<td>Trochocarpa gunnii</td>
</tr>
</tbody>
</table>

### ERICACEAE

**Gaultheria hispida**  
Snow Berry

### ESCALLONIACEAE

**Anopterus glandulosus**  
Native Laurel

**Tetracarpaea tasmanica**  
Tetracarp

### EUCRYPHIACEAE

**Eucryphia lucida**  
Leatherwood

**Eucryphia milliganii**  
Leatherwood

### FAGACEAE

**Nothofagus cunninghamii**  
Myrtle

**Nothofagus gunnii**  
Deciduous Beech

### GENTIANACEAE

**Chionogentias sp.**  
Mountain or Tasmanian Gentian
HALORAGACEAE

Myriophyllum pedunculatum  Mat Water-milfoil

MENYANTHACEAE

Nymphoides exigua  Marsh Wort

MONIMIACEAE

Atherosperma moschatum  Sassafras

MYRTACEAE

Leptospermum nitidum  Shiny Tea-tree

OXALIDACEAE

Oxalis magellanica  White Wood-sorrel

PITTOSPORACEAE

Pittosporum bicolor  Cheesewood, Tallow Wood

PROTEACEAE

Agastachys odorata  White Waratah
Bellendena montana  Mountain Rocket
Cenarrhenes nitida  Native Plum
Lomatia polymorpha  Variable Guitar Plant
Orites acicularis  Yellow Bush
Orites diversifolia  Variable Orites
Orites milligani  Milligan’s Orites
Orites revoluta  Narrow-leaf Orites
Persoonia gunnii  Gunn’s Geebung
Telopea truncata  Waratah

RANUNCULACEAE

Anemone crassifolia  Tasmanian or Mountain Anemone

ROSACEAE

Acaena montana  Mountain Buzzy
Acaena novae-zelandiae  Buzzy, Biddy-widdy
Rubus gunnianus  Alpine Raspberry

RUBIACEAE

Coprosma moorei  Turquoise Coprosma
Coprosma nitida  Mountain Currant Bush

SANTALACEAE

Exocarpos humifusus  Mountain Native Cherry
### SCROPHULARIACEAE

- *Euphrasia gibbsiae*  
  - Gibb's Eyebright
- *Euphrasia hookeri*  
  - Hooker's Eyebright
- *Euphrasia striata*  
  - Streaked Eyebright

### THYMELAEACEAE

- *Pimelea cinerea*  
  - Grey Pimelea
- *Pimelea lindleyana*  
  - Silky Pimelea
- *Pimelea sericea*  
  - Silky Pimelea

### WINTERACEAE

- *Tasmannia lanceolata*  
  - Mountain Pepper

### MONOCOTYLEDONAE

#### CENTROLEPIDACEAE

- *Centrolepis monogyna*  
  - Common Centrolepis
- *Gaimardia fitzgeraldii*  
  - Fitzgerald's Gaimard

#### CYPERACEAE

- *Carpha alpina*  
  - Small Flower Rush
- *Carpha curvata*  
  - Flower Rush
- *Eleocharis sphacelata*  
  - Tall Spike-rush
- *Gahnia grandis*  
  - Cutting Grass
- *Isolepis sp.*  
  - Club-rush
- *Lepidosperma filiforme*  
  - Common Rapier-sedge, Thread Rapier-sedge
- *Oreobolus acutifolius*  
  - Speckled Tuft Rush
- *Oreobolus pumilio*  
  - Alpine Tuft Rush
- *Tetraria capillaris*  
  - Hair Sedge
- *Uncinia compacta*  
  - Compact Hook-sedge
- *Uncinia tenella*  
  - Delicate Hook-sedge

#### IRIDACEAE

- *Diplarrena latifolia*  
  - Flatleaf Butterfly Iris
- *Isophysis tasmanica*  
  - Purple Isophysis
- *Libertia pulchella*  
  - Pretty Grass-flag

#### JUNCACEAE

- *Juncus sp.*  
  - Rush

#### LILIACEAE

- *Astelia alpina*  
  - Pineapple Grass
- *Blandfordia punicea*  
  - Christmas Bells
- *Campynema lineare*  
  - Campynema
- *Milligania densiflora*  
  - Cluster-leaf Milligania
POACEAE

Danthonia sp.  Wallaby Grass
Ehrharta sp.  Tussock Grass
Poa gunnii  Grass
Poa sp.

RESTIONACEAE

Calorophus elongatus  Long Rope-rush
Empodisma minus  Spreading Rope-rush
Restio sp.

XYRIDACEAE

Xyris gracilis  Slender Yellow Eye
Xyris marginata  Emarginate Yellow Eye
Xyris operculata  Tall Yellow Eye

GYMNOSPERMAE

CUPRESSACEAE

Athrotaxis cupressoides  Pencil Pine
Athrotaxis laxifolia  Intermediate Pine
Athrotaxis selaginoides  King Billy Pine
Diselma archeri  Cheshunt Pine

PODOCARPACEAE

Lagarostrobos franklinii  Huon Pine
Microcachrys tetragona  Creeping Pine
Phyllocladus aspleniifolius  Celery Top Pine
Podocarpus lawrencii  Plum Pine

PTERIDOPHYTA

ASPIDIACEAE

Polystichum proliferum  Mother Shield-fern

BLECHNACEAE

Blechnum nudum  Fishbone Water-fern, Black-stem
Blechnum wattsii  Hard Water-fern
<table>
<thead>
<tr>
<th>Family</th>
<th>Species</th>
<th>Common Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>DENNSTAEDTIACEAE</td>
<td>Histiopteris incisa</td>
<td>Bat's Wing</td>
</tr>
<tr>
<td></td>
<td>Pteridium esculentum</td>
<td>Bracken, Austral Bracken, Pteridium</td>
</tr>
<tr>
<td>DICKSONIACEAE</td>
<td>Dicksonia antarctica</td>
<td>Tree-fern, Soft Tree-fern</td>
</tr>
<tr>
<td>GLEICHENIACEAE</td>
<td>Gleichenia alpina</td>
<td>Coral-fern</td>
</tr>
<tr>
<td></td>
<td>Gleichenia dicarpa</td>
<td>Pouched Coral-fern</td>
</tr>
<tr>
<td></td>
<td>Sticherus tener</td>
<td>Silky Fan Fern</td>
</tr>
<tr>
<td>GRAMMITIDACEAE</td>
<td>Grammitis billardieri</td>
<td>Finger Fern</td>
</tr>
<tr>
<td>HYMENOPHYLLACEAE</td>
<td>Hymenophyllum australe</td>
<td>Austral Filmy Fern</td>
</tr>
<tr>
<td></td>
<td>Hymenophyllum marginatum</td>
<td>Bordered Filmy Fern</td>
</tr>
<tr>
<td></td>
<td>Hymenophyllum pellatum</td>
<td>Alpine Filmy Fern</td>
</tr>
<tr>
<td></td>
<td>Hymenophyllum rarum</td>
<td>Narrow Filmy Fern</td>
</tr>
<tr>
<td></td>
<td>Sphaerocinium aplanatum</td>
<td>Skeleton Filmy Fern</td>
</tr>
<tr>
<td>ISOETACEAE</td>
<td>Isoetes gunnii</td>
<td>Stout Quillwort</td>
</tr>
<tr>
<td>LYCOPODIACEAE</td>
<td>Huperzia varia</td>
<td>Mountain Clubmoss</td>
</tr>
<tr>
<td></td>
<td>Lycopodiella lateralis</td>
<td>Spreading Clubmoss</td>
</tr>
<tr>
<td></td>
<td>Lycopodium fastigiatum</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lycopodium scariosum</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 3

Likely Vertebrates (Excluding Birds) and Invertebrates of the Lake Johnston Nature Reserve area (Residents and Visitors)
(Parks and Wildlife Service Database & Tasmanian fauna handbooks)

E = endemic to Tasmania

**Terrestrial Mammals**
- Ornithorhynchus anatinus  
- Tachyglossus aculeatus setosus  
- Antechinus minimus minimus  
- Antechinus swainsonii  
- Dasyurus maculatus maculatus  
- Dasyurus viverrinus  
- Sarcophilus harrisii  
- Isoodon obesulus affinis  
- Vombatus ursinus tasmaniensis  
- Pseudocheirus peregrinus viverrinus  
- Trichosurus vulpecula fuliginosus  
- Cercartetus lepidus  
- Cercartetus nanus nanus  
- Potorous tridactylus apicalis  
- Macropus rufogriseus rufogriseus  
- Thylogale billardierii  
- Hydromys chrysogaster  
- Pseudomys higginsi  
- Rattus lutreolus

**Bats**
- Chalinolobus morio  
- Eptesicus regulus  
- Eptesicus darlingtonii  
- Nyctophilus geoffroyi pacificus

**Terrestrial reptiles**
- Niveoscincus metallicus  
- Tiliqua nigrolutea  
- Drysdalia coronoides  
- Notechis ater

**Amphibians**
- Litoria ewingi  
- Litoria burrowae  
- Crinia signifera  
- Crinia tasmaniensis

**Exotic And Feral Species**
- Felis catus

**Invertebrates**
- Keratroides albidus  
- Keratroides vulgaris  
- Neorchestia plicibrancha  
- Orchestiella neambulans  
- Orchestiella quasimodo  
- Parastacoides tasmanicus tasmanicus

Appendix 4

42
Likely Birds Of Lake Johnston Nature Reserve Area (Residents and Visitors)

(Tasmanian Bird Atlas, Thomas, 1979, Bryant, 1999)

Cygnus atratus  Black Swan
Anas superciliosa  Pacific Black Duck
Tachybaptus novaehollandiae  Australasian Grebe
Pelecanus conspicillatus  Hoary-headed Grebe
Phalacrocorax carbo  Great Cormorant
Egretta novaehollandiae  White-faced Heron
Agula audax  Wedge-tailed Eagle
Calyptorhynchus funereus  Yellow-tailed Black Cockatoo
Cacatua galerita  Sulphur-crested Cockatoo
Platycercus caledonicus  Green Rosella
Pezoporus wallicus  Ground Parrot
Cuculus pallidus  Pallid Cuckoo
Cacomantis flabelliformis  Fan-tailed Cuckoo
Hirundapus caudacutus  White-throated Needletail
Malurus cyaneus  Superb Fairy-Wren
Sericornis frontalis  White-browed Scrubwren
Sericornis magnus  Scrubtit
Acanthiza euingii  Tasmanian Thornbill
Lichenostomus flavicollis  Yellow-throated Honeyeater
Phylidonyris pyrrhopterus  Crescent Honeyeater
Acanthorhynchus tenuirostris  Eastern Spinebill
Petroica multicolor  Scarlet Robin
Petroica phoenicea  Flame Robin
Melanodryas vittata  Dusky Robin
Pachycephala olivacea  Olive Whistler
Pachycephala pectoralis  Golden Whistler
Coliuricrinia harmonica  Grey Shrike-Thrush
Rhipidura fuliginosa  Grey Fantail
Cocacina novaehollandiae  Black-faced Cuckoo Shrike
Strepera fuligosa  Black Currawong
Corvus tasmanicus  Forest Raven
Hirundo neoxena  Welcome Swallow
Zosterops lateralis  Silvereye
Zoothera lunulata  Bassian Thrush
Turdus merula  Common Blackbird (introduced species)

Note: Bird species names follow the taxonomy of Christidis & Boles (1994)
Site Proposals and Effects - Controlled Visitor Access Zone

Note: To be read in conjunction with the management plan

A Description of Proposed Facilities and Services

A.1 Controlled Visitor Access Zone Objectives

The objectives for the Controlled Visitor Access Zone are to:

- protect, maintain and monitor environmental features and values; and
- provide low impact, low density, non-intrusive controlled visitor opportunities consistent with the above objective.

A.2 Key Facilities & Services

Map 2 shows the proposed facilities and services. The main facilities are a 4WD vehicular access track to the point shown on the Map, and a corridor for future provision of walking access.

Vehicle Access

The management of vehicular access is important to protect the values of the Reserve.

The existing four wheeled drive track will be retained as far as the point indicated on Map 2.

The section of vehicular track to be retained will be repaired to a stable four wheel drive vehicle track. The track surface, side drains and culverts will be formed to ensure that drainage from the road is directed to the western side of the road. This may require some reshaping of the existing formation and construction of low roadside berms on the eastern side of the track.

Walking Access

To define, limit and mark walking access to a Huon pine viewing point, a path and hardened areas may be developed in the corridor provided for by the Zone.

At present there are no funds for such works, and until a careful assessment of actual visitor numbers and possible impacts is available, the type of walking surface required cannot be determined. Consequently, design and construction of the walking access is not warranted at this time. The timing of these works may be accelerated should funding from the private sector or other source become available or a partnership arrangement be negotiated with a tour operator.

In the interim, walking access and circulation for tour group visitors will be confined to the vehicular access track within the Zone.

A walking route along the old vehicular track formation will be retained for scientific research or management access. This walking route is not within the Controlled Visitor Access Zone and will not be available for use by licensed tour groups.

Information and Interpretation

Interpretation will be used to enhance visitor understanding and appreciation of the environmental and heritage values of the Reserve, foster appropriate visitor behaviour and explain management strategies.

All signs will conform with the appropriate specifications of the Departmental Signs Manual (Department of Parks, Wildlife and Heritage 1991).

Signs will be used in those situations where they are the most practical and effective means of communicating messages to visitors.

Access routes for authorised visitors need to be clearly identified. Information to assist visitors orientate themselves on arrival will be located at the vehicle turn around area. Information on appropriate use of the Reserve and minimal impact behaviour will
also be located here. This will be reinforced orally by the guide on each visit.

Interpretation information will be provided orally by the guide and in written form. This will be high quality, accurate information and interpretation on the features and values of the Reserve. Specialist information and interpretation on key research and study projects may also be provided.

Toilets

Toilets will not be provided on site. The expected duration of tour group visits of not more than 1-2 hours return trip from Rosebery, where toilets are available, does not warrant provision of toilets for tour visitors. Where the duration of scientific or management visits to the site requires it, transportable chemical toilets will be used.

Solid Waste

All visitors will be required to take their garbage with them when leaving the Reserve.

A3 Site Rehabilitation and Revegetation

Revegetation is proposed along the existing vehicular access track, particularly on that section of the track below the limit for future vehicular access. Generally, the track will be allowed to naturally regenerate to avoid any disease risks which could be associated with active revegetation works. However, in unstable or eroding areas, active rehabilitation and revegetation may be necessary.

Revegetation may include a mixture of direct seeding methods and selective planting of species grown on for the purpose.

Only local provenance of plant species indigenous to the Reserve will be used in revegetation works.

B Effects of Development

B.1 Site Disturbance and Environmental Impacts

Repair and maintenance of the vehicular access track will cause some limited and localised site disturbance. Similarly, any future construction of a walking track, boardwalk or viewing platform will have localised impacts. The disturbance will be limited to the corridor of the vehicular track and its drainage, and to the even narrower corridor of the walking access route.

Development of a walking track, possibly as an above ground boardwalk, will permanently impact on the environment in that it will occupy an area not previously built upon, and have a localised visual impact. These impacts are necessary to achieve the objective of providing visitor access without causing unacceptable damage to vegetation, soil profiles, and drainage patterns, alleviating the risk of erosion, disease spread or trampling over a wider and non-defined area.

Preliminary assessments of Aboriginal and historic heritage values indicate that site disturbance will not impact on heritage values. Nevertheless, more detailed Aboriginal and historic heritage assessments will be undertaken prior to and during construction works.

Strict limits on the extent of site works will be imposed and controls on erosion and runoff during construction will be put in place.

Prevention of disease impacts will be based on the disease management program. Key requirements for visitors will be the washing down of all vehicles and equipment, including camera tripods, washing of all footwear, or, in the case of tour group visitors, provision of sterile footwear to be worn for the duration of the visit. Within the Reserve, vehicular track drainage will be constructed to direct all run-off away from the Huon pine. Walking access will be constructed to a standard and with materials that ensure tour group visitors are limited to a defined corridor which does not interfere with natural drainage patterns or introduce material from the track corridor into the catchment.

B.2 Visual Intrusion

The main impacts of visual intrusion will occur in constructing a walking access to a viewing point near the Huon pine. This route will only be visible within a limited viewfield and from the near to middle distance.
Small and low set signs at the vehicle access turn around, and possibly at the terminus of the walking access will have a localised visual impact.

Rehabilitation of the length of four wheel track no longer required will have a slow but appreciable impact in the long term, lessening considerably the visual impact of the current high intrusive road scar when viewed from the Zone.

B.3 Rehabilitation

The site rehabilitation and revegetation works proposed in Section A.3 will have a significant beneficial impact on the current state of the Reserve.

B.4 Heritage Impacts

The facilities and services that are proposed will be consistent with the prescriptions of the management plan. No impacts on heritage values inconsistent with the management plan are anticipated.

B.5 Economic Effects

The likely economic benefits and effects of the proposed developments will occur incrementally depending on the time scale for the full implementation of the proposals detailed here.

The capital cost of upgrading the existing vehicular track access and the cost of constructing a walking access to a viewing point near the Huon pines could not be recovered from tour group operator licence fees within a reasonable time frame. This capital cost would have to be met by alternative means.

Guide training and production of signs and interpretation will be additional costs.

Some return can be expected from licence fees and returns on the number of visitors carried by licensed tour operations.

B.6 Tourism Effects

Though limited, there is potential for a tourism “niche” product to cater for special interest tourists. This product would particularly attract authentic “eco-tourism” and scientific interest markets at the quality end of the spectrum. Visitors will pay a premium for this product.

Within the foreseeable future, and based on similar nearby attractions and market demand, visitor numbers are expected to increase relatively slowly. In the longer term, and at full capacity for the first five years, a maximum 1400 tour group visitors will be provided for annually.

The benefits identified that will apply in the west coast region include:

- adding to the image and profile of the region as a destination in the State;
- providing a small, localised boost to the regional economy;
- employing local people;
- attracting a wider range of visitors to the area; and
- increasing visitor interest in Rosebery and the west coast area generally.

B.7 Changes in the Character of the Zone

The existing section of four wheel track that is to be kept open will be at a higher
standard than the existing track, with improved formation, grades, surface and drainage.

Some localised changes in the character of the Zone, by increases in visitor numbers and changes in visitor movement patterns, will occur. These changes will not have any appreciable detrimental effect on the character of the Zone. Visits will be of short duration, low in frequency and small in visitor numbers at any one time.

In the first five years of operation of any licensed tour group operation, there will up to four vehicles a day with eight occupants visiting the site. This makes a maximum total of thirty two visitors to the site on any one day, although only ever eight at any one time. The number of scientific research or management visitors is not expected to increase beyond the currently few and irregular visits occurring.

### C Environment and Heritage Management Program

Physical disturbance to the Zone needs to be minimised to protect environmental and heritage values while providing for suitable limited visitor facilities and services. When planning any future development or action for the area, the impacts on environmental and heritage values need to be assessed prior to any action being taken. Any adverse impacts need to be avoided or mitigated.

#### C.1 Application and Assessment

All development and activities will accord with the management plan and this Appendix. Development of a walking access route to view the Huon pine trees, or of any other facilities and services in Stage 2 of the Controlled Visitor Access Zone, will require a site plan for Stage 2. The site plan will be released for public comment.

Provision of Stage 2 facilities or services will be assessed in the site plan, among other things, on the basis of potential impacts on Reserve values and actual visitor numbers and potential demand. The plan will include environment and heritage management proposals detailing the ongoing and sustainable management of the environment and heritage effects of the development in accordance with these documents. This information will be made available for public comment for a minimum period of thirty days before the development is finalised and approved.

For other, more minor works provided for in these documents (for example erection of a sign or relocation of a vehicle access gate), any development, activity, landscape modification, research, management or maintenance work involving any ground breaking, structural disturbance, or environmental manipulation of any kind will be assessed in accordance with procedures approved by the Director.

Design concepts and details for each development or activity permitted by these documents will be prepared and approved before any work commences.

Costing for implementing works will be prepared in conjunction with preparation of design details for those works.

Variations to approved design concepts and details will require confirmation and approval by the Director or the Director’s nominee.

The walking track proposals will include a plan, with a north point, at a scale of not less than 1 : 1000 (unless otherwise approved) showing the details of the existing site and proposed works including:

- site topography at a maximum of 10 metre contour intervals;
- site features such as rock outcrops, locations of heritage sites, structures, works, the existing vehicular track, drains and culverts;
- catchment hydrology characteristics and drainage lines, wet areas and bogs; and
- location and species of existing vegetation;
- location of proposed walking route;
- areas (if any) to be cleared, slashed, blasted or otherwise disturbed;
- locations (if any) of stockpiling areas including topsoil and spoil dumps;
- machinery fuelling and servicing areas (if any);
- scope and staging of proposed earthworks (if any);
- slope stabilisation and revegetation measures;
- detailed design for safe stormwater and drainage management both during construction and at completion of the works;
- fire management provisions; and
- proposals for staging the use or development.

Drawings will be accompanied by supporting text necessary to outline the environmental and heritage effects assessment and environment and heritage management proposals.

A construction program which includes a timetable setting out intended commencement and completion dates of all major components of the works will be required.

C.2 Construction

Areas of disturbance arising from any site works permitted by these documents will be minimised. Where necessary, the limits of the site which may be disturbed will be pegged or fenced. Vegetation and other site features to be retained within this area, they will be protected for the duration of the works.

In the course of construction, work will cease if any sub-surface indicators of Aboriginal sites (such as shell in the presence of charcoal, or stone that is not endemic to the area or appears to have an unusual shape) or historic heritage are located. The Cultural Heritage Branch of the Parks and Wildlife Service will be informed and work in the area will not continue without their approval.

If necessitated by the scope of the works, erosion control and silt traps will be used during construction to prevent site disturbance effects on the water quality of watercourses and lakes in or adjacent to the Zone.

Geoconservation values will be assessed before undertaking any major ground disturbance and before any extraction of materials for track work purposes.

C.3 Rehabilitation

All proposed new site development works will include funding for rehabilitation in the project budget.

C.4 Fire Management

Within the Zone, the highest priority of fire management will be the protection of Reserve values.

A system to provide visitors with notice of total fire ban days and fire restrictions will be developed and implemented.

Visitor, scientific and management use and activities will be identified and managed to prevent the possibility of fire escapes.

Fire management will be undertaken in accordance with the management plan and fire management program.

C.5 Monitoring

To ensure that the environmental and heritage values of the Zone are protected, monitoring is proposed.

Notwithstanding provisions in these documents, if monitoring indicates the need, limits may be set on development or use of the Zone or total discontinuation of the development or use may be required.

The objectives of monitoring are to:

- provide information on the environmental and visitor condition of the Zone which will govern how the area is managed; and
- ensure that impacts are kept within limits which accord with this Appendix and the management plan for the Reserve.

Key photo monitoring points will be established and baseline photos taken prior to commencement of developments set out in these documents.

The following indicators of environmental and visitor conditions will be monitored:

- walking and vehicle track surfaces including muddiness and erosion;
- evidence of trampling and side tracks;
- damage to vegetation;
- changes in flora and fauna species populations;
- weeds;
- litter;
- the occurrence of Phytophthora cinnamomi or other plant pathogens;
- fire history including ignition source;
- damage to the historic heritage of the Zone;
- damage to the Aboriginal heritage of the Zone;
- any enlargement of the permitted visitor area;
- compliance with visitor behaviour requirements; and
- visitor satisfaction.
Map 1 LAKE JOHNSTON NATURE RESERVE BOUNDARIES

LOCATION

Tasmania

DEPARTMENT OF PRIMARY INDUSTRIES, WATER AND ENVIRONMENT

© Information & Land Services

2321/99
Map 2  LAKE JOHNSTON NATURE RESERVE
MANAGEMENT ZONES

Controlled Visitor Access Zone

Controlled Scientific Zone

4WD vehicular access along existing track

STAGE 1
Limit of vehicular access (parking and turn-around)

STAGE 2
Area within which a future walking access corridor may be located

Tasmania
DEPARTMENT of PRIMARY INDUSTRIES,
WATER and ENVIRONMENT
© Land Information Services