Hill Reserves Management Plan

August 2006

DUNEDIN CITY COUNCIL

Kaunihera-a-rohe o Otepoti

Hill Reserves management plan

ACKNOWLEDGMENTS

This plan was prepared by the Dunedin City Council, Community and Recreation Services. Compilation and development of this plan was by Jacinda Baker, Reserves Planner, with the input of a number of staff who contributed to its preparation.

The initial draft was prepared with the guidance of the working party consisting of councillors and members of the community.

We would also like to thank the *Hill Reserves Management Plan* Working Party and submitters for advice and suggestions throughout the process.

Wildland Consultants Ltd provided the Ecological Assessment Report that will assist in the management of flora and fauna on the reserves.

1 INTRODUCTION

Reserves have a major role in contributing to the maintenance and enhancement of ecological, amenity and recreation values in the City by providing attractive open spaces and facilities for the enjoyment of active and passive recreational activities by both residents and visitors.

The purpose of the *Hill Reserves Management Plan* is to provide a policy framework for the use, enjoyment, maintenance, protection and appropriate development of Council reserves on the first line of hills surrounding the urban core of Dunedin City. This is to ensure consistency in terms of the management of current reserves and the expansion of reserves in the future. This management plan applies to all Council reserves listed below, regardless of classification under the Reserves Act 1977. It has been prepared in accordance with the procedures outlined in Section 41 of that Act.

Identification of Reserves

Sites identified to be included in the management plan are those reserves that are on the first line of hills surrounding the urban core of Dunedin City. The reserves have been chosen for this plan because of their role in providing amenity to the wider area of Dunedin, their high scenic values, extensive areas of native vegetation or because they provide a connecting link with another reserve included in this plan. The reserves contained in this plan have similar characteristics, purpose, management issues and requirements, and therefore a single generic plan has been prepared to cover such sites. Continuity of management between adjoining areas is also appropriate.

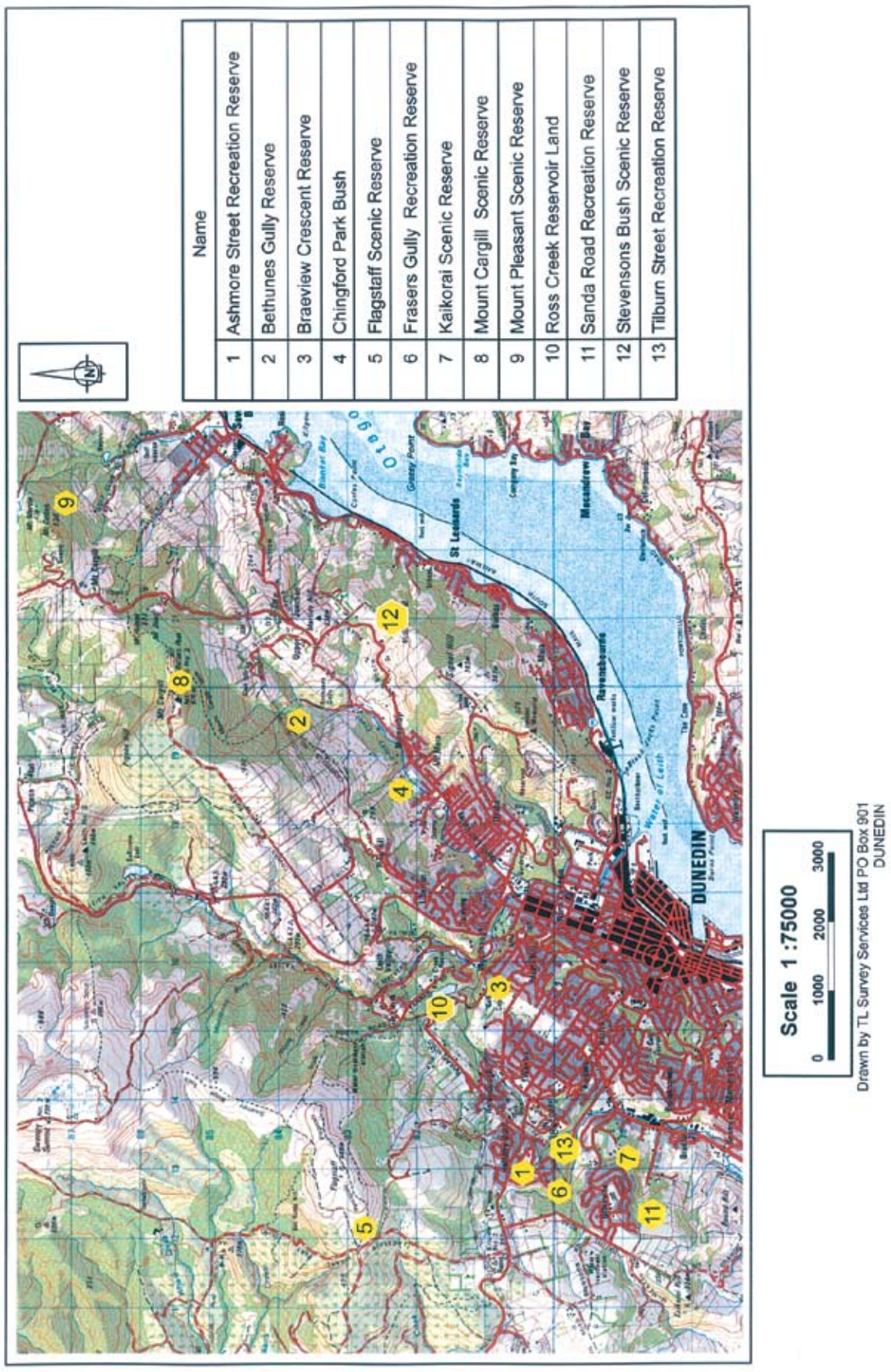
Many of the reserves play an important role in the landscape amenity and character of the city, being visible from large areas of the urban city, because of their relatively large size and location.

The sites are either properties managed by the Council, held in fee simple ownership for the purpose of reserves, reserves which are classified as such under the Reserves Act 1977 or facilities owned by the Council. All reserves listed in this management plan will be managed and developed/enhanced in accordance with the Reserves Act 1977, as it is desirable to achieve the same management and development objectives for all reserves of a similar nature.

This management plan contains policies for the following reserves that are owned or managed by the Dunedin City Council:

- Ashmore Street Recreation Reserve
- Bethunes Gully Reserve
- Braeview Crescent Reserve
- Chingford Park Bush
- Flagstaff Scenic Reserve
- Frasers Gully Recreation Reserve
- Kaikorai Scenic Reserve
- Mount Cargill Scenic Reserve
- Mount Pleasant Scenic Reserve
- Ross Creek Reservoir land
- Sanda Road Recreation Reserve
- Stevensons Bush Scenic Reserve
- Tilburn Street Recreation Reserve

Figure 1.0 Location Map



2 MANAGEMENT PLANNING FOR RESERVES

2.1 Aims and Objectives of Reserve Management Plans

The mission of the Dunedin City Council is to "maintain and enhance our Community for the long term well-being of our people and environment through innovative leadership and the provision of cost effective services". (*Dunedin City Council Long term Council Community Plan 2004/05*).

Reserve Management Plans assist with achieving the Council outcomes to support this mission.

2.2 Purpose of a Management Plan

The Dunedin City Council has a statutory responsibility to manage reserves on behalf of the community under the Reserves Act 1977. The Act requires the Council to prepare Management Plans in which it outlines its intentions for the use, enjoyment, maintenance, protection and preservation of its reserves.

The Act prescribes a basic reserve management framework with which management plans must comply. The aim of the legislation is to ensure reserve management and development is based on sound principles and that, through involvement in the planning process, the needs of the public are clearly identified.

Management plans establish a series of objectives and policies for the management and, where relevant, the development and use of reserves, with the aim of resolving any conflict over competing uses and expectations, while taking into account the long-term needs of both the reserve and the community. The primary purpose of such strategic planning for Council's reserves is to ensure environmental and economically sustainable management of reserves and their values for the people of Dunedin and visitors to the City.

Management Plans provide guidelines for future decision-making, ensuring consistency and balance. A plan's recreational aims and objectives are considered in the context of wider Council recreational strategy and policy. One of the documents which helps provide this framework is the *Sport and Recreation Strategic Plan (2002)*, which outlines the priorities and guidelines for the provision of recreation services within Dunedin. The aim of the management plan is to ensure that proposals for the reserves meet the purpose of the reserve, and, through the public's involvement, ensure their needs are facilitated while managing the resource in a sustainable manner.

A management plan also provides Council with efficiency gains in the management of the reserve by not requiring further public notification or ministerial consent for matters that would otherwise require such public notice. The ability to forgo some public consultation/approvals recognises that the compatibility of an activity with the overall purpose of a reserve has already been addressed in the management planning process.

2.3 Management Planning Under the Reserves Act 1977

The Reserves Act 1977 is designed to protect public land, to designate its predominant values and to ensure the land is managed to promote and sustain those predominant values. To promote good management, the Act requires the development of Reserve Management Plans. These plans can vary greatly in their detail, but they must comply with the over-riding principles of the Act (outlined below). The management plan preparation process is also prescribed by the Act.

The Community and Recreation Services Department of the Dunedin City Council has the responsibility to prepare management plans for Dunedin's reserves. These management plans should:

> *Provide for and ensure the use, enjoyment, maintenance, protection and preservation… and,… the development, as appropriate, of the reserve for the purposes for which it is classified. Reserves Act 1977 41(3)*

This plan includes both scenic and recreation reserves containing primarily native vegetation.

The primary purpose of a scenic reserve, under the Act, is to:

> *Protect and preserve in perpetuity for their intrinsic worth and for the benefit, enjoyment, and use of the public, suitable areas possessing such qualities of scenic interest, beauty, or natural features or landscape that their protection and preservation are desirable in the public interest. Reserves Act 1977 19 (1)(a)*

The primary purpose of a recreation reserve, under the Act, is to:

> *Provide areas for the recreation and sporting activities and the physical welfare and enjoyment of the public and for the protection of the natural environment and beauty of the countryside, with emphasis on the retention of open spaces and on outdoor recreational activities, including recreational tracks in the countryside. Reserves Act 1977 17(1)*

Management planning is also a process for determining the management direction that the community and the Dunedin City Council would like to apply to reserves. This includes the identification of the ways in which management direction can be achieved.

Management plans should outline Council's general intentions for use, enhancement, and maintenance of its reserves. The aim of the management plan is to ensure that proposals for the reserves meet the purpose of the reserve, and through the public's involvement, ensure their needs are facilitated while managing the resource in a sustainable manner.

2.4 Consultation Processes

The draft management plan was initially prepared and approved in 2001. The final plan was not made operative due to reserve status research and classification of land still needing to be carried out. With the completion of this research, the plan was reviewed (primarily retaining the initial objectives and polices), consulted on, and progressed to become an operative document. Consultation is undertaken in accordance with the Reserves Act 1977, the Local Government Act 2002, and Councils Consultation Policy and Guidelines 2005. The management planning process is summarised below.

Process specified in Reserves Act 1977	Dunedin City Council Consultation
Publicly notify intention to prepare the Management Plan and invite interested persons/organisations to make submissions on the proposed plan within a minimum period of one month.	Council's intention to prepare the Management Plan was advertised on 11 December 1999 with a two month submission period. Additional reserves for inclusion in the management plan were advertised on 1 April 2000 for a one month submission period.
The Draft Management Plan is prepared giving consideration to comments received.	The submission comments received in relation to the reserves were considered when preparing the draft.
The Draft Management Plan is adopted and advertised for submissions for a period of a minimum of two months.	Community Development Committee Meeting 26 September 2000 approved the draft for consultation. The draft was advertised for a two month submission period.
Consideration of submissions, objections and holding a Reserves Act Hearing.	A hearing was held on the 1 February 2001 and submissions received were considered by the Hearing Committee. The Hearing Committee recommendations were approved by the Community Development Committee on 4 April 2001 and appropriate changes made to the draft management plan.
The Reviewed Draft Management Plan is adopted and advertised for submissions for a period of a minimum of two months.	The draft management plan was reviewed following the completion of land status and classification work and approved for public consultation by the Community Development Committee 26 April 2006 and submissions called for on 29 April for a two month submission period.
Consideration of submissions, objections and holding a Reserves Act Hearing.	2 August 2006
Appropriate changes are made to the Draft Management Plan. The recommendations of the Hearing Committee are approved by Council and the final Management Plan is adopted.	29 August 2006
The adopted Management Plan is forwarded to the Minister of Conservation for approval of the Scenic Reserve sections in accordance with Section 41(1) of the Reserves Act 1977.	23 November 2006

2.5 The Review of Reserve Management Plans

Site-specific reserve management plans are subject to ongoing review and regular, comprehensive reconsideration at approximately ten-yearly intervals. Public comment will be sought on each management plan as it is reviewed. Where the Reserves Act 1977 enforces provisions specific to any particular reserve, those provisions are noted and, where the nature of a reserve or its facilities requires the implementation of additional policies, these are set out in this management plan.

The separate document, *Reserves Management Plan – General Policies*, contains policies for the management of all reserves, and is read in conjunction with site-specific management plans such as the *Hill Reserves Management Plan*. The *Reserves Management Plan – General Policies* is reviewed more frequently than site-specific plans. This creates a more flexible and dynamic management planning approach, which means the way the Council manages its reserves is more relevant to the current issues and needs of the people that use the reserves.

2.6 Consideration of Other Management Documents

Reserve management planning does not occur in isolation. Broader aims, objectives and policies guide it. Some of this guidance originates from the aims and objectives of the Council and statutory documents such as the District Plan, Annual Plan, Activity Management Plans, and Long Term Council Community Plan. Other non-statutory documents such as the Sport and Recreation Strategic Plan, Play Strategy, Fees and Charges Policy, and the Track Strategy also provide direction for the policies contained in management plans.

Reserves Management Plan – General Policies

The *Reserves Management Plan – General Policies* forms an integral part of this and other management plans and is intended to be read with reference to specific policies in the plans.

The *Reserves Management Plan – General Policies* document covers all basic issues of the day-to-day administration of reserves in Dunedin. The *Hill Reserves Management Plan* takes precedence where both the *Reserves Management Plan – General Policies* and the *Hill Reserves Management Plan* address the same issue. Otherwise both documents are used to guide management of the reserves.

The following considerations have policies within the *Reserves Management Plan – General Policies* document:

Administration Policies

District Plan
Council As An Affected Party
Community Consultation
Tangata Whenua, Mana Whenua and Iwi
Naming of Reserves
Enforcement
Use of Hazardous Substances
Pest Animal and Plant Control
Trees and Tree Management
Forestry Management On Reserves
Lookouts and Viewpoints
Fencing
Promotion of Reserves
Fire Control
Heritage Conservation

Use Policies

Use of Reserves
Special Events
Public Access and Reserve Closure
Exclusive Use
Commercial Use – Concessions (other than Leases or Licences)
Encroachments
Occupation Agreements
Network Utility Operators
Liquor Licences
Signs
Partnerships and Sponsorships
Commemorative Plaques and Trees
Tracks
Car Parking
Reserve Lighting
Sportsfield Lighting
Litter Control and Dumping
Camping
Circuses and Side-Show Operators
Aircraft and Helicopter Landings
Fireworks Displays
Research and Education
Harvest of Cultural Material or Harvest of Material for Cultural Purposes
Volunteers Working on Reserves

Development and Change Policies

Landscape
Changes in Recreational Facility Use Buildings and Structures (including playgrounds)
Toilet and Shower Facilities
Abandonment

***Dunedin City Council** Track Policy and Strategy*

The Dunedin City Council *Track Policy and Strategy 1998* develops a citywide context for the management and development of tracks. As such, it seeks to secure a balanced approach to track development and management, and it considers the Dunedin City Council's tracks in light of those managed by the Department of Conservation and other groups. Any track development within the reserves must take account of the policies developed by the *Track Policy and Strategy 1998*.

A multi-use track is considered to include walking and running, and mountain biking. The document states that:

> *Tracks are multi-use facilities unless otherwise identified by a decision by Council or legislated in statute against a particular use" (policy 15.2).*

Sport and Recreation Strategic Plan

The *Sport and Recreation Strategic Plan 2002* defines the Council approach to delivering its recreation and sport services in the city. The strategic plan provides a framework and philosophy for the role of Council, and prioritises spending across the variety of recreational activities that Council provides for the city. The Strategy makes a number of recommendations specifically in regards to increasing funding for maintenance of major tracks on the reserves in this management plan and having tracks to link mountain bike sites between areas.

Dunedin City District Plan

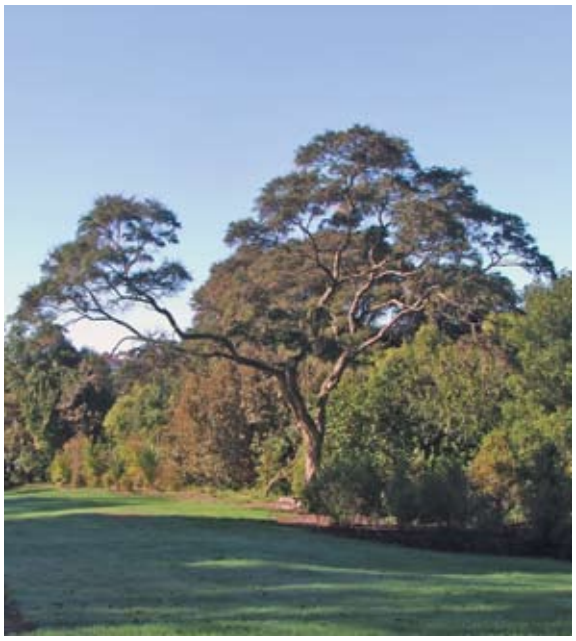
The objectives in the District Plan affect the management of the reserves in two main ways. First, in authorising activities on the reserves, Council needs to be mindful of the effects of reserve activities upon adjacent properties. Second, in managing and developing the reserves, Council needs to consider the wider role reserves have within the landscape contributing to the setting, visual containment and skyline for urban areas. In recognising this role, development proposals will need to consider District Plan provisions for landscape management areas, urban landscape conservation areas and areas of significant indigenous vegetation (where they apply). The provisions of the District Plan reinforce the importance given to landscape and ecological values in the objectives of this management plan.

The impact of development on adjoining residential properties also requires consideration. Development on these properties can result in impacts on reserve. Consideration of the potential effects needs to be undertaken during the assessment of any Resource Consent application.

Play Strategy

The *Play Strategy 2006* and *Play Strategy Supporting Document 2006* are relevant to the management of Bethunes Gully due to the presence of the play equipment at this site. Bethunes Gully playground received new equipment in 2005 with the redevelopment of the site which also included installation of barbeques and shelters.

Play equipment at this site is important as it contributes to the enjoyment of users with children who choose to picnic or play in the reserve.



3 AIMS, OBJECTIVES, AND POLICIES

3.1 Introduction/Explanation of terms

Management Aims

The aims of a management plan should be able to stand the test of time and should require little in the way of amendment even when this plan is reviewed. The aims are related to the classification and purpose of the reserves. They provide a framework within which any future proposals for development/enhancement, or any other form of action which may have an impact on the reserves, can be considered.

The aims of this management plan reflect the expectations for the management of the reserves. The aims are deliberately 'high level' but still operate as a filter through which any proposal for the reserves can be sifted.

The aims are written as statements of outcome. That is, to allow the reserve to be assessed in the future in relation to what has been achieved.

Management Objectives

The objectives of a management plan elaborate on the means necessary to achieve the established aims. They should be oriented towards action and provide the basis for developing specific policies on matters that reserve managers will probably need to address.

The objectives operate as a finer filter to be used to assess the suitability of all activities within the reserves, and to identify the controls required to maximise benefits and to minimise adverse impacts.

Management Policies

The policies become the means by which objectives are achieved. Over time, as certain specific objectives are attained or require change, relevant policies will also be amended. The policies in the management plan guide all future aspects of the reserves and provide the framework for continuity of management.

The policies contained in the *Reserves Management Plan – General Policies* apply to the management of all reserves and should be referred to as if it was a physical part of this plan.

The aims, objectives and policies are in no order of priority.

3.2 Administration

Aims

1. The reserves are managed in accordance with all relevant legislation, relevant Council policy, and statutory instruments.
2. Reserve boundaries reflect the purpose and classification of reserves.

Comments

The *Hill Reserves Management Plan* includes land of varying status. The areas are classified as scenic, recreation, local purpose reserve, or fee simple land. Management, use and enhancement of the reserves are subject to the principles and specific provisions of the Reserves Act 1977 relating to each classification.

The Reserves Act 1977 provides for reserves to have management plans. While a number of the areas in this plan are not reserves under this Act, the Dunedin City Council intends to manage them as if they were, so a consistent management approach is taken and appropriate protection of values occurs.

Certain developments and management activities on reserves (e.g. erection of buildings, discharges, etc.) are also subject to the provisions of the Resource Management Act and the Dunedin City Council District Plan. Consents required under this Act are in addition to, not a substitution for, the consent of the Dunedin City Council as reserve owner or administrator.

The statutory obligations need to be recognised and satisfied as part of the future planning of the reserves.

Council may at times have opportunities to purchase or be gifted land that may be considered appropriate as a reserve for the City or may enhance the values of an existing reserve. Historical records indicate major plans for acquisition and rationalisation of reserve boundaries during the 70's and 80's. Agreement was reached with the Department of Conservation that land owned by the Department that adjoined Mt Cargill Scenic Reserve would be transferred to Council for management. The areas were surveyed, but actions stalled and the transfer was never completed. This proposal may need to be revisited in the future. Where land is acquired adjacent to the reserves in this plan, or added to a reserve in this plan, it will be managed in accordance with this plan.

Existing areas of some reserves may be of little value to the overall purpose of the reserve. In such cases disposal of land may reduce pressure on resources or allow for the acquisition of more beneficial areas of land. Where this rationalisation occurs, it will be carried out in accordance with the requirements of the Reserves Act 1977.

Objectives

1. To give effect to this plan by ensuring management is in accordance with relevant legislation and policy.
2. To review this plan on a regular basis.
3. Council takes advantage of opportunities as they arise to increase the size of the reserve to enhance the recreation opportunities available to the public or to enhance the values, and to rationalise its boundaries to better reflect the purpose and classification of the reserve area.

Policy

1. Activities on the reserves shall be consistent with the requirements, objectives, policies or rules set out in any statute, by-law, relevant management plan, district or regional plan.
2. Where reserve classification or status is not appropriate to meet the needs of the reserve, a change to its classification will be investigated.
3. The plan will be reviewed on a ten yearly basis to ensure objectives and policies are updated in the public interest, and to take account of changing aspirations and requirements.
4. Council may increase the size of the reserves through land acquisition if that land enhances the recreation, landscape, heritage, ecological and/or cultural values of the reserve.
5. Any additional land added to the reserves will be classified under the Reserves Act 1977 as appropriate and managed under this management plan.
6. If any portion of a reserve does not support the aims and objectives of its management plan, its disposal may be pursued.

3.3 Protection of Reserve Values

Aims

1. Sustainably managed reserves in which the recreation, ecological, natural, cultural, and historic values are protected, maintained, and enhanced.
2. The Reserves within this management plan are protected for their landscape values, and their role in the Dunedin landscape is recognised.

3.3.1 Landscape Values

Comments

The landscape values of the reserves are reflected in the Dunedin City District Plan by their designation as Landscape Conservation Areas or Urban Landscape Conservation Areas. This recognises the important role the reserves play in the landscape amenity and physical character of the city. The reserves contribute to an important network of land with predominantly natural character and significant values surrounding the urban core of Dunedin City. Council has the responsibility to ensure the natural character and values of the reserves are maintained, protected, or enhanced.

Two mechanisms ensure that landscape values are not adversely affected. The first of these is for the protection of landscape values under the Reserves Act 1977.

Section 19 of the Reserves Act 1977 specifies the purposes of scenic reserves and the activities that are, or are not, appropriate. One purpose of the Act is to protect, maintain, and enhance landscape, intrinsic, and amenity values. The preservation of other values such as historic, geological, and biological, are also considered in this section. While some recreational use of scenic reserves is permitted, the provisions of the Act ensure that other values are not degraded as a result of use. Landscape values of the reserves, as well as other factors, are taken into consideration when the Dunedin City Council provides comments on resource consent applications on neighbouring properties as a potentially affected party.

The second mechanism is the requirements of the Resource Management Act 1991 and its instrument, the District Plan. Landscape also forms part of a broad suite of characteristics known as amenity values in this Act, and Council is obliged to have particular regard for the maintenance and enhancement of amenity values.

Objective

1. To maintain, enhance and protect the landscape character, amenity values, and scenic qualities of the reserves with consideration of their role in the wider city landscape, their essential visual prominence from Dunedin City, and the views gained from within the reserves.

Policies

1. Policies in the 'Landscape', 'Council as an Affected Party', and 'Buildings and Structures' sections in the *Reserves Management Plan – General Policies*, should be read in conjunction with this Management Plan.
2. All possible action will be taken to prevent activities in adjoining areas from compromising the landscape values of the reserves.
3. Buildings or structures will not be permitted on reserves where they are likely to adversely impact on landscape or amenity values.
4. Existing vegetation and structures shall be managed to ensure that the landscape character and quality of the reserve is maintained and enhanced.
5. Any development that includes planting or earthworks shall be done in a way that protects and/or enhances the landscape character and quality of the reserve.
6. Council will impose conditions to protect landscape values with any permission given in its capacity of landowner and manager or in submissions on applications for Resource Consents on adjoining properties.
7. Any permission granted under the Reserves Act 1977 is in addition to any required under the Resource Management Act 1991. All new facilities and services must comply with the requirements of any District or Regional Plan, Building Act, or any relevant statute or by-law.

3.3.2 Heritage Values

Comments

A number of reserves in the Dunedin area contain known sites of heritage significance. It is important to recognise and retain heritage features, which may include historic structures and archaeological sites. Such sites provide physical evidence of historical events and add to the depth of experience for visitors and local residents when they visit the reserves. Management of the reserves will therefore include retention and interpretation of heritage features so that their heritage significance is recognised and retained.

The reserves contain a number of heritage structures and features associated with Dunedin's early history. Those that are known are described in this section. A number of these will also come under the definition of an archaeological site.

An archaeological site is described in the Historic Places Act 1993 as any place associated with pre-1900 human activity, which may, through investigation by archaeological methods, provide evidence relating to the history of New Zealand. All archaeological sites are automatically protected under the Historic Places Act, regardless of whether they have been previously recorded or not.

Heritage structures include:

- The valve tower and the earth dam at Ross Creek Reservoir. These are the oldest structures of this type still in use in New Zealand. In recognition of their significance, the NZ Historic Places Trust has classified both structures as Category I in the Historic Places Register.
- Stone-lined diversion channels and other structures associated with the reservoir.
- Early cottage site and stone ruin at Ross Creek.

Known archaeological sites include:

- The original track north from Dunedin, dating from about 1848. This route went through part of the Flagstaff Reserve and from there along Swampy Summit to Mountain Road. Evidence of this track still exists in the form of cart ruts that can be seen in the reserve. The route of the old bullock track is on a legal road and can be accessed by walkers.

Objective

1. To identify sites of heritage significance, accord them an appropriate level of protection and maintain them for the enjoyment and education of future generations.

Policies

1. Policies in the 'Heritage Conservation' section of the *Reserves Management Plan – General Policies* should be read in conjunction with this section.
2. In regards to the scenic reserves in this plan, heritage and archaeological features shall be protected and managed in a manner that is compatible with the principal and primary purpose of the reserve.
3. All possible action will be taken to prevent activities in adjoining areas from compromising the heritage values of the reserves.

3.3.3 Ecological Values

Comments

Many of these reserves are nearby to, or adjoin, other protected tracts of indigenous vegetation that enhance both the conservation values of the reserve and their potential for recreation activities. The linkages between these reserves and other tracts of indigenous vegetation are important to provide corridors for movement of native fauna.

An Ecological Assessment was undertaken by Wildland Consultants Ltd for the 5 largest reserves covered by this plan. This document will be used to guide management of flora and fauna on these reserves. As this is a lengthy document, it has not been attached to this management plan but is held by the Community and Recreation Services Policy Team.

Objectives

1. To maintain, enhance and protect ecological values, biodiversity of desirable ecological habitats, indigenous fauna and flora, and areas of special interest within the reserves that contribute to the functioning of ecological systems and native habitats.
2. To establish a programme of monitoring and recording changes occurring in the vegetation on the major reserves to assist with their future management.
3. To allow appropriate research on reserves which will be beneficial to Council for the management of flora and fauna within the reserves. Where exclosure plots are required, these may be permitted.

Policies

1. The Ecological Assessment Report 2000 will be used as a guiding document for management of indigenous flora and fauna on the major reserves.
2. Major changes in vegetation will be recorded and compared to base line data in the Ecological Assessment Report 2000 to indicate changing patterns over time.
3. Any planting carried out in the area shall be of indigenous endemic species, propagated from seed or plant sources within the Dunedin Ecological District, and consideration shall be given to using flora that will provide a food source for native birds and insects that are appropriate to the site/environment.
4. Any rare or endangered native plant or animal species in the reserve will be protected as required by relevant statutes. Where appropriate, Council will liaise with the Department of Conservation to ensure appropriate management of populations of nationally threatened species.
5. In regards to the scenic reserves in this plan, trees and bush shall not be cut or destroyed, except with permission of the Minister of Conservation.
6. All possible action will be taken to prevent activities in adjoining areas from compromising the ecological values of the reserves.
7. To control invasive exotic plants and animal pests on the reserves where they adversely impact on the intrinsic values of the reserve.
8. To ensure adequate boundary fencing is provided on reserves where stock trespass is a threat to the ecological values of the reserve. Work will be in accordance with the Biosecurity Act 1993 requirements.
9. Where appropriate, co-ordination with adjoining landowners on pest plant and animal control will be undertaken.
10. In the case of scenic reserves exotic flora and fauna will, as far as possible, be exterminated for the purpose of preservation of indigenous flora and fauna, unless the Minister of Conservation determines otherwise.
11. To allow appropriate research on reserves which will be beneficial to Council for the management of flora and fauna within the Reserves. Where exclosure plots are required, these may be permitted.

3.3.4 Pest Plant and Animal Control

Comments

A variety of weed and animal pest species exist on the reserves to varying degrees. Control of undesir-

able plants and animals is essential to ensure the protection of desirable reserve vegetation and biota. Management options of these issues are discussed in this document.

A weed or pest plant is an undesirable species growing in a location where it detrimentally impacts on the values of the desirable indigenous or other vegetation, or values of the reserve. A pest animal is an undesirable species in a reserve capable of damaging the reserve's native flora and fauna or other values of the reserve.

The Council has obligations for pest animal and plant control under legislation such as the Biosecurity Act 1993, Biodiversity Strategy, and the Regional Pest Management Strategy. The Council has programmes and contracts in place for monitoring and controlling pest species. The Reserves Act 1977 also requires the extermination, as far as possible, of exotic species in scenic reserves, unless the Minister of Conservation determines otherwise.

Wilding seedlings of woody tree species such as sycamore may spread within reserves either from a seed source within the reserve or on adjacent properties. Sycamore spread in some reserves has the potential to result in sycamore replacing the native canopy. Control efforts will be put into preventing spread into new areas where sycamore have not established.

The Reserves Act 1977 also requires the extermination, as far as possible, of exotic species in scenic reserves, unless the Minister of Conservation determines otherwise.

Some of the larger reserves in this plan have goat problems. No monitoring is currently done to determine the impact goats are having on native vegetation. If the university or some other group is interested in researching the impact of pest animals, permission will be granted for the construction of exclosure plots if required.

Possums are present on a number of reserves. Their impact on native vegetation will depend on the type of vegetation present and the number of possums in the reserve and immediate area. Possum numbers are monitored and controlled on reserves where appropriate.

In the past, problems have been encountered on reserves with straying stock due to poor or no fencing. Some boundary fences may from time to time require attention and Dunedin City Council will liaise with the adjoining land owners regarding the maintenance or construction of boundary fences. The Fencing Act 1978 specifies landowner responsibilities.

An Ecological Assessment was undertaken by Wildland Consultants Ltd for the 5 largest reserves covered by this plan. The Ecological Assessment identified a set of short, medium and long-term objectives for the management of pest plants and animals on the reserve. Work toward achieving these recommendations will improve the quality of the existing environment for native flora and fauna. This document will be used to guide management pest animals and plants on these reserves. As this is a lengthy document, it has not been attached to this management plan but is held by the Community and Recreation Services Policy Team.

Objectives

1. To control invasive undesirable/exotic and native plants and animal pests on the reserves where they adversely impact on the ecological or intrinsic values of the reserves.
2. To ensure adequate boundary fencing is provided on reserves where stock trespass is a threat to the ecological values of the reserve. Work will be in accordance with the Biosecurity Act 1993 requirements.
3. Where appropriate, co-ordination with adjoining landowners on pest plant and animal control will be undertaken.
4. In the case of scenic reserves exotic flora and fauna will, as far as possible, be exterminated for the purpose of preservation of indigenous flora and fauna, unless the Minister of Conservation determines otherwise.
5. Existing desirable native and exotic vegetation will be enhanced through the control and removal of noxious plants and invasive weeds.

Policies

1. The Dunedin City Council will use the Ecological Assessment Report 2000 as a guide towards pest animal and plant control.
2. As far as possible, exotic plants are to be eliminated. Where elimination is not desirable or feasible, exotic plants are to be restricted to levels specified in relevant legislation. In the case of scenic reserves, exotic flora will be exterminated unless the Minister of Conservation determines otherwise.
3. Pest plant species will be controlled where they encroach upon ecological, scenic and recreational values on the reserves.
4. Council will actively control animal pests in the reserves and reduce their numbers to a point where they have minimal detrimental effect on the native flora and fauna.
5. Sycamore will be contained within the areas where it currently exists and controlled to prevent establishment in new areas.

6. Major changes in weed populations will be recorded and compared to base line data in the Ecological Assessment Report 2000 to indicate changing patterns over time and identify further weed control required.
7. Where pest plant control in conjunction with adjoining landowners is appropriate, steps will be taken to co-ordinate control activities.
8. Policies in the 'Pest Animal and Plant control', 'Fencing', and 'Use of hazardous Substances' Section of the *Reserves Management Plan – General Policies* applies in conjunction with this Management Plan.
9. Council will identify reserve boundaries that require improvements or maintenance on fencing to protect reserve values.
10. Council will endeavour to ensure boundary fences around the reserve are maintained in a stock-proof condition.

3.3.5 Protection of Ecological Values on Specific Reserves

Flagstaff Scenic Reserve

The natural regeneration of Flagstaff Reserve will eventually result in a transformation from tussock grassland to shrubland and theoretically, at least, eventually back to native forest. There has been some debate in the literature as to whether fire should be used as a management tool at Flagstaff Reserve to retain the tussock grassland and reduce damage caused if an accidental fire were to occur. Dunedin City Council recognises the significance of the tussock grassland vegetation on Flagstaff Reserve but does not consider fire to be a feasible or appropriate management option because of the risks involved and the interference with natural processes.

Flagstaff Reserve allows wide views across the Dunedin area. With time, as the tussock grassland changes to tall shrubland and, perhaps, eventually to forest, these views will be lost. Removal of woody seedlings in specific areas will allow tussock to continue to dominate in that location, thereby retaining some views along the existing track at specific locations. Permission from the Minister of Conservation is required for the removal of native vegetation from the scenic reserve.

Objective

1. To allow natural plant succession on Flagstaff Scenic Reserve but give further consideration to options for retaining views from the Flagstaff-Pineapple track (officially the Skyline Walkway).

Policies

1. To allow natural plant succession of native vegetation to occur on the reserve.
2. As vegetation type changes from tussock grassland to shrubland and, perhaps, eventually forest, areas to allow views from prominent locations along the Flagstaff-Pineapple track (Skyline Walkway) will be established. The creation of these viewing areas will involve the removal of native woody seedlings to maintain tussock species and low-growing shrubs in the area, subject to Minister of Conservation approval.

Bethunes Gully

The forestry plantation on the lower slopes of Bethunes Gully (on fee simple land) was established in 1931 to preserve a level of aesthetic quality whilst allowing for revenue to be generated for future development of the area. Thinning and harvesting of the plantation is likely to continue over the next 40 years or so. Once areas have been harvested they will be replanted with appropriate native vegetation or allowed to regenerate if native woody species volunteer at that location.

Objective

1. To facilitate the gradual removal of the exotic plantation from Bethunes Gully Reserve and replace it with native forest species.

Policies

1. With the completion of timber harvesting, areas will be replanted in appropriate native woody vegetation or allowed to regenerate where adequate seed sources exist. Enhancement of the track network through this area may also be appropriate at this time.

3.4 Recreation

Aims

1. Public enjoyment of the reserves is encouraged for activities compatible with the principal or primary purpose and natural character of the reserves.
2. Existing recreational facilities and opportunities on the reserves are sustainably managed.
3. The reserves offers appropriate recreational opportunities and associated facilities for residents and visitors to Dunedin City.

Comments

Dunedin has an extensive and accessible recreation resource of reserves around the city. The reserves in this plan provide opportunities for informal recreation such as sightseeing, walking, jogging, mountain biking, and family recreation and play. The links between reserves are also important to increase the opportunities the reserves provide collectively as well as individually.

As mountain biking is becoming more and more popular in Dunedin it is desirable that the needs of this recreational use are adequately catered for. This means the provision of tracks for a range of uses, skill levels, and in a variety of locations, accessible from the city. Future consideration needs to be given to this activity as recreational opportunities are developed. In particular, the provision of 'family friendly' tracks that facilitate commuter travel and easy mountain biking for beginners and families, is an identified need in Dunedin. The hill reserves, and links between these areas, are an important recreational resource, or potential resource, for mountain bikers.

Reserve users will need to co-operate and consider each other's interests and values to ensure a high level of user enjoyment and safety are maintained between various activities on the reserves. Signage will be used to facilitate multi-use of tracks where appropriate.

Suggestions for possible future track developments have been made during the preparation of this management plan and the *Track Policy and Strategy*. These and other suggestions are outlined in this section as possible options that will be investigated in the future if time and resources permit. Development of new tracks is a low priority for the Council, as indicated in the *Track Policy and Strategy*. The concept of a skyline track linking swampy summit and Mt Cargill can't be completed due to the motorway dividing these two areas and impeding such a development unless an underpass or overpass can be constructed to facilitate safe pedestrian passage. There are no plans to develop new tracks at this time.

In 2004 money was donated by the Culverts and Entwistles for the development of 'Cloud Forest of the Leith Track' from Sullivan's Dam to the lower Mt Cargill car park to link with the existing AH Reed track. The Otago Tramping and Mountaineering Club have been undertaking the work to develop the track. The upper half of the track has been developed to a standard which replicates a classification of 'tramping' track under some track classifications or as 'hard' under the classification system used in Council *Track Policy and Strategy*. There is no intention to upgrade this section of the track beyond this standard. The lower section of the track has been extensively board walked to protect flora and fauna and to encourage family use. Work continues on the lower track to the Leith lookout.

Scenic reserves require an increased level of consideration of the impact of proposed developments (including tracks) and in many cases will require permission from the Minister of Conservation for proposals. Open areas of scenic reserves can be developed for amenities and facilities where they are necessary to enable the public to obtain benefit and enjoyment from the reserve. Activities or developments on recreation or local purpose reserves may not be appropriate for scenic reserves. The Reserves Act 1977 provides guidance in regards to these matters.

Provision of on and off site information is a priority identified in the *Track Policy and Strategy*. Increased signage, interpretation material and brochures are proposed in this plan.

The Mt Cargill Scenic Reserve tracks and Flagstaff-Pineapple track (officially the Skyline Walkway) were developed as Walkways under the New Zealand Walkways Act. Therefore these tracks must be managed in accordance with the New Zealand Walkways Act 1990 as well as the other acts that prescribe management of the reserves.

Objectives

1. To provide for informal recreational activities for the benefit, and enjoyment of the public, taking into account the ecological sensitivity and natural values of the reserves, and their ability to sustain a particular use or an increase in use.
2. To manage the reserves for multi-purpose recreation, focusing primarily on walking, jogging, mountain biking (where appropriate), sightseeing and the appreciation of the natural values where these uses are compatible with the principal and primary purpose of the reserves. In the case of scenic reserves, the presence of tracks or some activities may not be appropriate.
3. To maintain and enhance the network of tracks providing access into and through reserves, and providing a variety of recreational experiences through provision of tracks to varying standards.
4. To manage the Flagstaff-Pineapple track (officially the Skyline Walkway) in accordance with the New Zealand Walkways Act 1990.

Policies

1. Policies in the 'Tracks' 'Use of Reserves', 'Special Events', and 'Exclusive use', 'Development' section of the *Reserves Management Plan – General Policies* apply in conjunction with this Management Plan.
2. The policies in the Dunedin City Council Track Strategy will be considered in conjunction with this plan. As such, tracks will be classed as multi-purpose, unless the Dunedin City Council approves specific exclusions. Mountain bikes are not permitted on the Ross Creek, Mt Cargill, and Pineapple track (Flagstaff Reserve walking track) as indicated in the City of Dunedin Bylaws.

3. Tracks will continue to be maintained to the specifications set out in current management contracts. However, the level of maintenance will be reviewed by staff on a three yearly basis as the maintenance contracts for each reserve are re-tendered.
4. Where appropriate and feasible, Council will identify, enhance or develop tracks suitable for use by members of the community with limited mobility, and people with buggies or prams.
5. The following recreation activities, which cause significant damage to tracks, are not permitted within the reserves:
   - Horse riding
   - Motor biking
   - Recreational four wheel driving
6. Any new track development or track enhancement within the reserves, which relies on access across private land at any point, shall proceed only once formal agreement with the private landowner has been reached.
7. The Flagstaff-Pineapple track (officially the Skyline Walkway) will be managed in accordance with the New Zealand Walkways Act 1990, where this is compatible with other Acts guiding management of the reserves.
8. The upper sections of the 'Cloud forest of the Leith track' from Sullivan's Dam to Mt Cargill will be provided to tramping track standard.
9. Council may consider the following possible track developments in the future (these may follow legal road lines):
   - Track linking Tilburn Street Reserve and Frasers Gully Reserve.
   - Track through Sanda Road Reserve and Kaikorai Scenic Reserve.
   - Link from existing track at Chingford Park through bush area to Campbells Road
   - Track from Campbells Road to connect with the existing Bethunes Gully track, following the line of the informal downhill mountain bike track.
   - Extend existing Chingford Park track to create an access point near the sports fields.
   - Track through Stevensons Bush Scenic Reserve from St Leonards (Tui St) to Cleghorn Street, possibly a loop track or a track from Stevensons Bush Scenic Reserve to Signal Hill Recreation Reserve.
   - Skyline track – 3 options – From the Organ Pipes track to Mt Pleasant Reserve and along to Mihiwaka, or from Mount Cargill to Signal Hill.
   - A mountain bike track from Flagstaff into the Leith Valley using Nicols Creek catchment.
   - Leith trig point number 2 to Leith Saddle track (motorway impediment).
   - Frasers Gully loop track from Dalziel Road along behind Brockville houses to link with the existing track slightly above the ford.

   Note: As indicated above, the development of new tracks is a low priority for the Dunedin City Council, and there are no plans for the above suggestions at this stage. These options may be investigated as time and resources permit. Tracks through scenic reserve may follow legal road lines.
10. The 'Dog Control Bylaw 2005' applies in conjunction with this Management Plan. In accordance with that document:
    a. Dogs are permitted on the reserves (except where otherwise indicated) provided they are under control and all dog droppings are removed by the owner or person having charge of the dog.
    b. 'Under control' as referred to above, requires dogs to be on a leash in the following reserves or tracks: Ross Creek, Frasers Gully, Bethunes Gully in the lower picnic area, and the Pineapple track.
    c. Dogs are not permitted on playgrounds.
    d. Dogs are prohibited in Mount Cargill Scenic Reserve and the Organ Pipes track.

3.5 Access to Reserves

Aim

1. Access to reserves is secured through appropriate means.

Comments

Council's contractor for forestry operations (currently City Forests Ltd) requires access to the forestry plantation at Bethunes Gully. This access crosses private property and part of the reserve and will be continued for the life of the forestry plantation.

An easement for limited access between Campbells Rd and Chingford Park Bush area currently exists across private property. If a track through the bush area is developed at some stage in the future, use of the right-of-way is likely to increase. The easement may need to be further re-negotiated, if required.

Objectives

1. To secure access to reserves using appropriate legal methods where necessary.

Policies

1. The 'Public Access and Reserve Closure' section of the *Reserves Management Plan – General Policies* should be read in conjunction with this plan.
2. The vehicle access on Mt Cargill Reserve from the end of Cowan Road to the television transmitter site will continue to be maintained as part of the reserve and will not be made a legal road.
3. Access to the forestry plantation at Bethunes Gully for forestry activities is permitted via the easement across the adjoining private property.
4. The easement for access between Campbells Rd and Chingford Park Bush area currently crossing private property will be further re-negotiated, if required.

3.6 Car Parking

Aim

1. Sufficient parking is provided in association with reserves to allow and encourage use of tracks and reserves.

Comments

The provision of parking areas associated with reserves or tracks is essential for safety and convenience of the public. Changing circumstances, such as an increase in reserve use, may require further consideration of available car parking facilities and potential requirements.

The parking available on Mt Cargill Road at the end of the Organ Pipes track may be inadequate during busy periods. Further investigation is required to determine the level of use and in turn consider the options to alleviate pressure on the current car parking facilities.

Parking areas currently used in association with the Pineapple track and Ross Creek Reservoir tracks are on a legal road. Agreements for the use and maintenance of these car parks will need further consideration and discussion by Council staff.

Objective

1. To provide parking in conjunction with reserves, primarily near track ends, where adequate roadside parking is not available.

Policies

1. The 'Car Parking' section of the *Reserves Management Plan – General Policies* should be read in conjunction with this plan.
2. Where access through, or use of, reserves such as Kaikorai Scenic Reserve, Stevensons Bush, and Mt Pleasant Scenic Reserves is further encouraged, consideration will be given to the need to provide appropriate roadside parking.
3. Figures for track use of the Organ Pipes track and Burns Park track will be sought or collected to determine whether parking provided at the track ends is adequate. This will be done as resources permit.
4. Consideration will be given to options for providing increased parking adjoining Mt Cargill Road near the end of the Organ Pipes track, if proven to be necessary.
5. Formalise use, and maintenance responsibilities of, parking areas associated with Flagstaff Reserve and Ross Creek Reservoir that are on a legal road.

3.7 Education

Aim

1. Reserves can be used for educational purposes consistent with other aims and objectives in this plan.

Comments

The reserves have a great potential for educating the public about natural processes, and indigenous flora and fauna. The reserves are currently used, or have the potential to be used, for education purposes by schools, universities, polytechnics, colleges, and by the general public.

Providing interpretative material either on or off site will assist an understanding of the natural processes and features of the reserves.

Education also involves encouraging appropriate use of the reserves and appropriate research practices through conditions set by Dunedin City Council.

Objective

1. To encourage appropriate environmental practices on reserves and enhance users' understanding of natural systems through appropriate interpretative material and further researching.

Policies

1. The 'Research and Education' section of the *Reserves Management Plan – General Policies* should be read in conjunction with this plan.
2. Appropriate scientific research and educational study in the reserves will be encouraged and supported. Permission of Council or the Minister of Conservation is required depending on the status of the reserve, type of research, and species involved.

3. To encourage appropriate behaviour on reserves and water catchment areas in line with the Environmental Care Code and Council's Water Business Unit requirements.
4. To develop and actively promote an interpretative programme, signs and material which contribute to awareness and appreciation of natural processes, natural and scenic qualities of the reserves where appropriate.

3.8 Occupation Agreements

Aim

1. Occupation of reserves and commercial use of reserves is formalised through occupation or use agreements.

Comments

The term occupational agreements refers to any lease, licence, easement (including rights-of-way, telecommunication agreements), exchange of letters, or other agreement reached between the Council and a person, organisation, or company that is occupying part of a reserve (including below ground facilities).

The Council's power to grant leases, licences, and easements over reserves varies depending on the status of the reserve. Sections 53-56, 74 of the Reserves Act 1977 address these matters for scenic and recreation reserves. Where the Council owns recreation reserves that have not been developed for that purposes, licences may be granted for grazing/gardening and other similar activities. Grazing licences exist on reserves managed under this plan.

An easement for the Flagstaff-Pineapple track (officially the Skyline Walkway) exist as this track is registered as a Walkway under the New Zealand Walkways Act 1990.

Access to reserves is occasionally required across private land. This is the case on land adjacent to areas of Braeview Crescent Reserve, where a pedestrian Right-of-way exists across private land to allow access to Ross Creek Reservoir.

Due to the nature and height of reserves such as Mount Cargill, telecommunication companies considered them to be prime sites for telecommunication facilities. Reserve values, particularly landscape values need consideration when assessing this type of proposal. Section 48A of the Reserves Act 1977 permits the granting of licences for communication stations and any works connected with the station provided certain criteria is met.

The occupational agreements and easements currently existing on the reserves or proposed for the reserves are listed in Appendix 3.

Objectives

1. To confirm the occupation of reserves for approved uses and facilities by the granting of occupation agreements.
2. To negotiate rights of access across private land when required for access to reserves.

Policies

1. The sections on 'Occupation Agreements', 'Network Utility Operators', and 'Encroachments', of the *Reserves Management Plan – General Policies* apply in conjunction with this Management Plan.
2. The leases, licences, or occupational agreements in Appendix 3 will be allowed on the reserve in accordance with the appropriate section the Reserves Act 1977.
3. Where occupational agreements or easements are not specified in this plan, public notification is required under the Reserves Act 1977.
4. Formal agreements may be lodged with the District Land Registrar.
5. Retain the pedestrian Right-of-way being Area A DP 300146 across Lot 8 DP 9417 to allow access to Ross Creek Reservoir.

3.9 Fire Control

Aim

1. Planning by the appropriate organisations minimises the risk of fire and ensures appropriate control methods are available.

Comment

During certain conditions, the risk of fire increases within the reserves. Measures need to be taken to minimise the risk of fires starting in, or adjacent to, reserves and to minimise damage to the reserve should a fire start.

Educating the public about fire risks and encouraging them to report fires immediately can reduce the danger of fire. The provision of firebreaks and vehicle access in certain reserves is also important to allow fire appliance access and provide a barrier to contain a fire should one start. Tarns and artificially created pond or dam areas provide water sources that can be accessed during emergencies. Rural Fire Authorities issue burn permits on properties adjacent to reserves with conditions to ensure reserve protection.

Objective

1. Where appropriate and feasible, to provide adequate access to reserves to enable fire appliances access.
2. To take steps to minimise fire risk and damage resulting from any fire occurring.

Policies

1. The section on 'Fire Control' in the *Reserves Management Plan – General Policies* applies in conjunction with this plan.
2. Retain the 4WD track within the Flagstaff Reserve as an established firebreak that will provide easy access to the Reserve in the case of wild fire.
3. Maintain a 'first aid' water supply by the provision of fire dams within or adjacent to the Flagstaff Reserve.
4. Maintain the grassed firebreaks around the boundaries of Ashmore Street, Tilburn Street, and Sanda Road Reserves.
5. Fire will not be used on any reserve as a method of vegetation clearance.

4 GENERAL INFORMATION

4.1 Landscape

It is recognised that each reserve varies in character and purpose as well as in location, but that it is possible to group a number of the reserves together into 'like' areas.

The majority of reserves are either within Landscape Conservation Areas or Urban Landscape Conservation Areas under the Dunedin City District Plan. These areas are very important to the landscape amenity and character of the city. The reserves are highly visible with a number being visible from large areas of the urban city. Together, the group of reserves within this management plan form an important part of the open space, native vegetation and dominant landforms surrounding the urban centre of Dunedin City.

The reserves listed as Landscape Conservation Areas contribute greatly to protect values of the amphitheatre of hills in which the urban core of Dunedin lies, while the areas considered as important Urban Landscape Conservation Areas help to protect the open space areas within the urban area.

Landscape Conservation Areas (LCA)

The following reserves are listed as LCA, being recognised as visually prominent areas, collectively making a significant contribution to the landscape quality of Dunedin City. It is for this reason that they are highly sensitive to any changes and require strict management. These Reserves are as follows:

- Bethunes Gully Scenic Reserve
- Flagstaff Scenic Reserve
- Mount Cargill Scenic Reserve
- Mount Pleasant Scenic Reserve
- Stevensons Bush Scenic Reserve

The Dunedin City District Plan recognises the following attributes or characteristics of the Flagstaff – Mt Cargill Landscape Conservation Areas:

(a) The visual dominance of natural landform and other natural elements (such as remaining native vegetation) over cultural or human-made landscape elements, e.g. buildings or plantations

(b) The extent, integrity, coherence and natural character of the major elements such as landform, streams and areas of indigenous vegetation

(c) The extent and quality of views from the principal public routes and viewpoints

(d) The skyline generally defined by natural elements

(e) The following significant land form features listed in the NZ Geological Society Geopreservation Inventory for the Otago Region:
- Dunedin patterned ground (Flagstaff)
- Organ Pipes (Mt Cargill)

(f) The large diversity of indigenous vegetation types including:
- Cloud forest of pahautea, cedar (*Libocedrus bidwillii*) / and some podocarps (Mt Cargill)
- Podocarp broadleaved forests
- Various shrublands

(g) The values related to the cultural significance to mana whenua of the summit of Mt Cargill

Urban Landscape Conservation Areas

Areas recognised as Urban Landscape Conservation Areas are visible to a lesser extent from the entire urban network and do not exhibit the same degree of influence as the LCA. However, they provide important green areas within the urban framework having a strong influence on the amenity of localised areas.

The following reserves are recognised as Urban Landscape Conservation Areas within the framework of the Dunedin City District Plan:

Ashmore Street Recreation Reserve
Braeview Crescent Reserve
Frasers Gully Recreation Reserve
Kaikorai Scenic Reserve
Ross Creek Reservoir
Sandra Road Recreation Reserve
Tilburn Street Recreation Reserve

The Dunedin City District Plan recognises the importance of green spaces and bush within the urban framework for the following reasons:

- Provides contrast with the built environment
- They can provide reference orientation and create strongly defined neighbourhoods
- Provide important habitat for wildlife and potential for recreation activities.

Areas of Significant Conservation Value

Mt Cargill and Flagstaff are also recognised in the District Plan as Areas of Significant Conservation Value (ASCV), indicating the significant ecological values of these reserves. In future there is potential for other reserves listed within this management plan to be considered as ASCV's through the process to update Schedule 25.4 to the District Plan.

5 MANAGEMENT OF INDIVIDUAL RESERVES

5.1 Ashmore Street Recreation Reserve

Introduction

Ashmore Street Recreation Reserve (2 ha) is located 3 km west of the city centre. The reserve adjoins Tilburn Street Reserve, which in turn adjoins Frasers Gully Recreation Reserve.

Landscape

This reserve is located in a steep stream gully within Halfway Bush and is surrounded by residential housing on three sides. The reserve is physically linked to Tilburn Street Reserve, which in turn links with Frasers Gully to form a network of green spaces within the area. The visual quality of the reserve varies with any native vegetation being restricted to immediately adjacent to the stream. The upper slopes of the reserve are predominantly grasses with a few exotic specimen trees in places. While the visual quality of the reserve is not high, the reserve provides an important green space within the neighbourhood and has the potential to be developed into something more substantial.

Vegetation

The gully running through the reserve is vegetated in a mixture of native and exotic bush. A number of large eucalyptus trees exist on the side of the gully above the bush. The remainder of the reserve is primarily public open space grassed area. Until recently, much of the now open areas were covered with gorse and broom. Task Force Green workers have carried out extensive work to clear a firebreak between the houses and the reserve and remove weeds from the bushed gully. This open area reduces fire danger for neighbouring houses should a fire start in the reserve, provides easy access around the reserve, and has reduced the amount of household and garden rubbish being dumped in the reserve. Flail cutting of the grass will be carried out 3 or 4 times a year to keep the open space area tidy.

Fauna

Fish

Fish surveys of major rivers around the general location of Ashmore Recreation Reserve have indicated the presence of a number of species (Allibone 1997). While the stream running through the reserve has not been specifically surveyed, results for the Kaikorai Stream are likely to be similar, indicating the following species may occur:

Anguilla dieffenbachii	shortfinned eel
Galaxias eldoni	inanga
Gobiomorphus cotidianus	common bully
Rhombosolea retiaria	black flounder
Salmo trutta	brown trout

Use

This reserve has been used by local children as a 'wilderness' playground.

Halfway Bush School opposite the reserve could be approached to discuss projects on the reserve involving the children.

Transpower has the following existing high voltage transmission line traversing the Ashmore Street Recreation Reserve: Gore–Halfway Bush A 110kV single circuit on poles. Plans indicating the location of these transmission lines are available from the Transpower Environmental Group, and should be sought to assist with planning development of the reserve.

Access

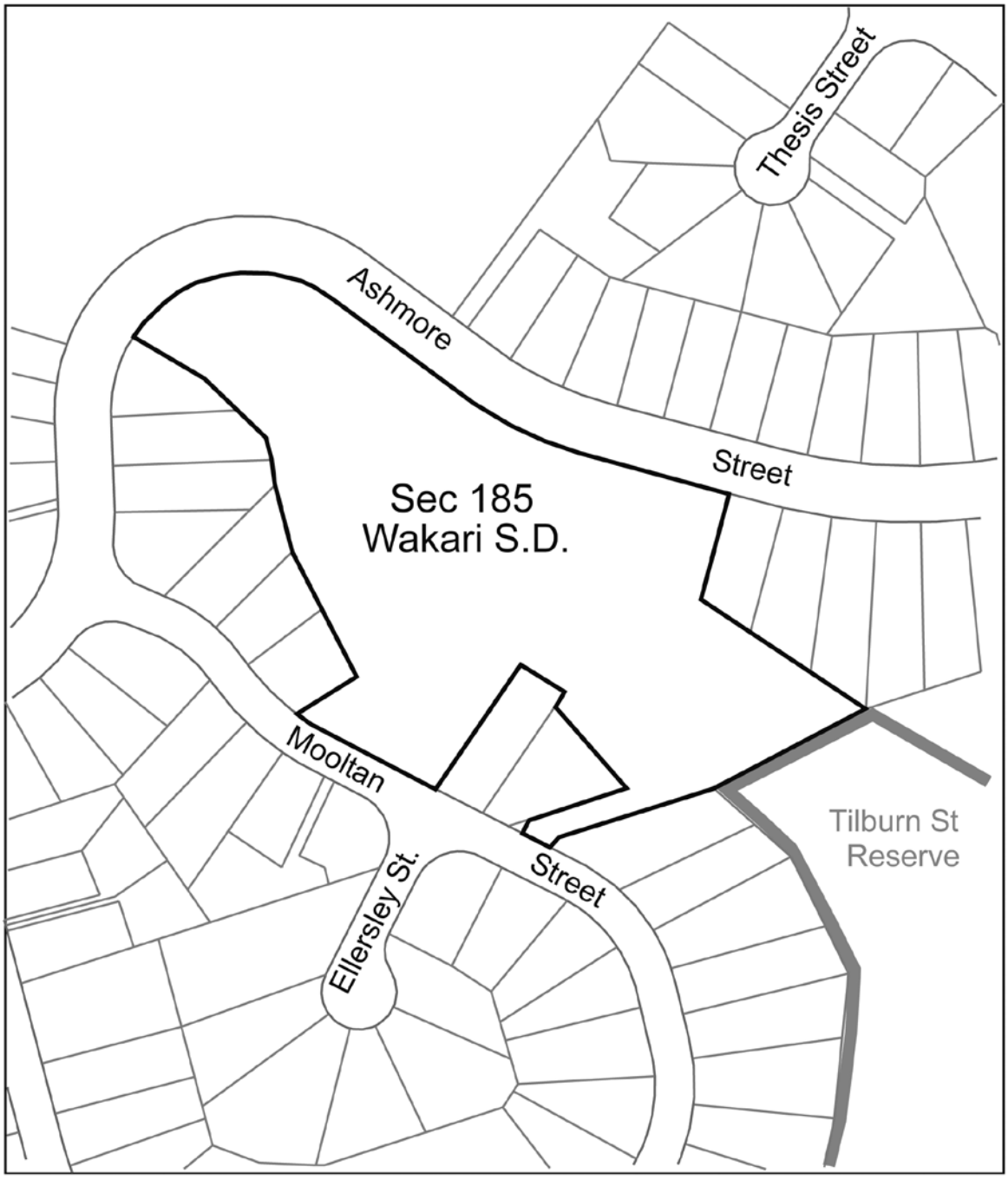
The reserve is accessible from Ashmore and Mooltan Streets and from the adjoining Tilburn Street Reserve.

Management Issues

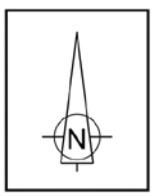
The dumping of household rubbish and garden waste along the boundaries of the reserve is a concern. This problem has reduced since the clearing of the firebreak between the reserve vegetation and adjoining properties. Efforts will continue to further reduce this problem.

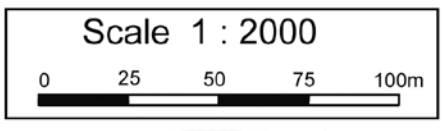
Access from private property and through empty private sections is occurring. This may not be a significant problem but may have adverse impacts on areas of the reserve. Further consideration may need to be given the issue of access points in the future.

Figure 1.1 Ashmore Street Recreation Reserve: Diagram of Land Units



Ashmore Street Reserve 1.8640ha

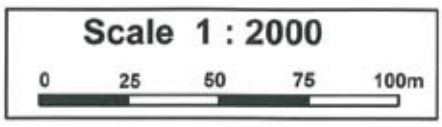




Drawn by TL Survey Services Ltd PO Box 901
DUNEDIN

Figure 1.2 Ashmore Street Recreation Reserve: Aerial Photograph of Land Units

Ashmore Street Recreation Reserve



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5.2 Bethunes Gully Reserve

Introduction

Bethunes Gully Reserve is located to the north east 6 km from the city centre at the end of Cluny Street off Norwood Street. The area has open grassed areas surrounded by exotic forest. This is an ideal site for picnics with the children's play equipment and many opportunities for exploration.

The reserve is fee simple land but was purchased under Section 302(1)(a) of the Municipal Corporations Act 1920 for the purpose of providing a place for public recreation and instruction.

History

David Bethune purchased the property in 1878 from Mr W. Longworth and erected a sawmill to process the vast quantities of timber on the site. Workers housing, fencing for stock, sales yards, and a slaughter yard and house were also erected. In 1884 Bethune relinquished control of the area, which, with little use being made of it, slowly degenerated.

In 1915 Mr J Thomson purchased the land and the mill, moving there 5 years later. In 1923, 10 acres were added to the original Bethunes Gully property and used to grow oats, turnips, and hay to feed cattle in winter.

In 1930 Mr Thomson sold the property to the Council with the agreement that the Thomsons continue to live on the site until Mr Thomson passed away in 1955. A tree-planting scheme was started in 1931.

Landscape

Bethunes Gully is located at the end of North East Valley forming an important linkage between the urban area in the valley and Mt Cargill Scenic Reserve. The reserve is presently a mix of native vegetation, managed forestry blocks and open spaces. The entrance to the reserve is a mix of native vegetation along the stream edges creating a buffer zone between picnic areas and mature forestry stands. The character of the reserve is very different here from that on the upper slopes of Mount Cargill, as it is very enclosed and internally orientated. Views out of the reserve cannot be gained from this area because of the large forests surrounding the area, giving it a sense of isolation and remoteness. A number of picnic areas exist in the reserve, providing important open green spaces along the otherwise totally enclosed walking track.

Barbeques, toilets, and a playground are provided in the first picnic area adjacent to the carpark.

Vegetation

The Reserve contains a mixture of grazed pasture margins, exotic plantation forest with an understorey dominated by indigenous shrubs, areas of secondary vegetation that may have arisen from logging in the 1880s, and a complex mosaic of forest, scrub and shrubland dominated by indigenous and exotic species surrounding Lindsay Creek and the plantation areas at the base of Bethunes Gully.

In Bethunes Gully Reserve the most important habitat is the stony streams (both shaded and open, and adjacent seepages).

Pest plants and animals

The relative abundance of seedlings and saplings of palatable indigenous plants indicates low numbers of mammalian browsers. Future management actions should aim to maintain this low level of browsing pressure by monitoring animal pest numbers and responding to any increase in their densities. Possums are the main browsing threat in the reserves.

Fauna

Avifauna

The indigenous species recorded include rifleman, bellbird, New Zealand pipit, shining cuckoo, kahu, long-tailed cuckoo, grey warbler, New Zealand kingfisher, kereru, welcome swallow, brown creeper, morepork, robin, tui, fantail, and silver eye.

These birds are likely to predominantly live in the native areas above the Reserve and use the large expanse of reserves as wide territories. Many of these species probably breed in the area. Other species such as kahu, and water birds are vagrants from other larger forest stands in the district.

Invertebrates

Key habitats for native invertebrates are:

- Stony streams, both shaded and open, and adjacent seepages

Stony Streams and Seepages

An impressive range of aquatic insects inhabit stony streams, including 21 caddis, ten stoneflies and four mayfly species.

Management Issues

Management issues for this reserve that are relevant to the native invertebrates and their habitats are:

- Future harvesting of exotic plantations
- Woody weeds within, and adjacent to, the reserve
- Mammalian pests that feed on foliage which is important to the native invertebrates directly or pests that feed directly on the insects.

Use

The area is used extensively during the summer for family picnics. It is also used by school groups and university students for field trips and research.

The walking track passes through exotic plantations on the reserve and continues into Mt Cargill Scenic Reserve. This track is popular with day walkers throughout the year.

Mountainbiking Otago, with the agreement of Council, have developed a network of tracks in the lower section of Bethunes Gully to link with the tracks on Forester Park. These tracks provide for beginner or intermediate riders.

Access

Vehicle access to the car park is from Cluny St. The Mount Cargill Walk is the most commonly used pedestrian access. Legal access is also available from Campbells Rd (unformed legal road), although there is no formal pedestrian access at present.

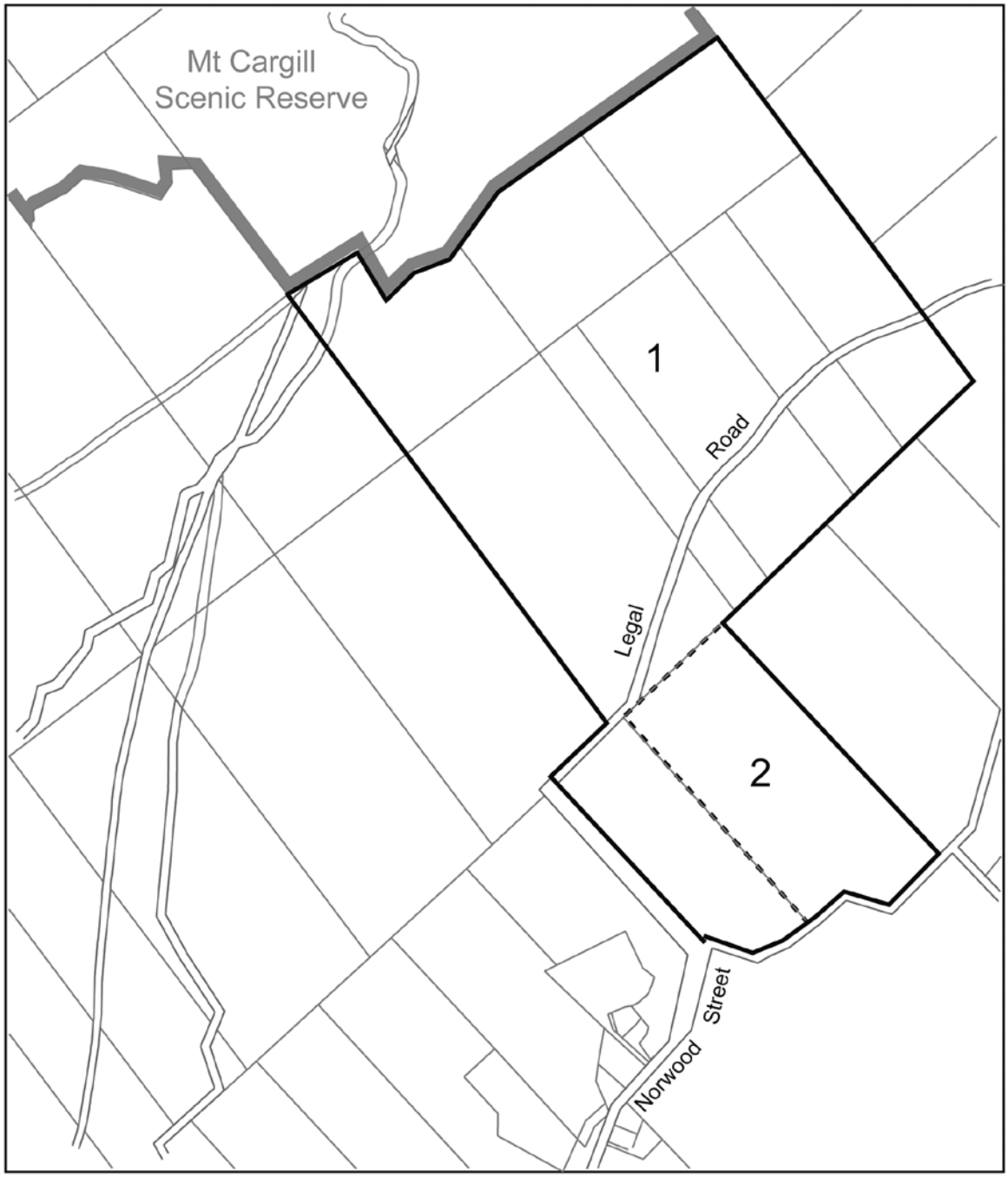
Forestry Plantation

The forestry plantation on the lower slopes of Bethunes Gully was established in 1931 to preserve medium aesthetic quality whilst allowing for revenue to be generated for future development of the area. Thinning and harvesting of the plantation is likely to continue over the next 40 years or so.

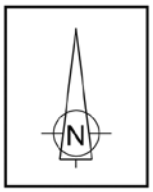
The long-term goal for this area is the gradual removal of the exotic plantation from the reserve and replacement with regenerating native species. Once areas have been harvested they will be replanted with appropriate native vegetation or allowed to regenerate if a native seed source exists at that location.

A low impact logging code could be established. This could include felling of trees away from indigenous forest and the protection of riparian strips around stream margins.

Figure 2.1 Bethunes Gully Reserve: Diagram of Land Units



Bethunes Gully Reserve 43.7832ha



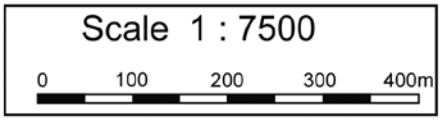


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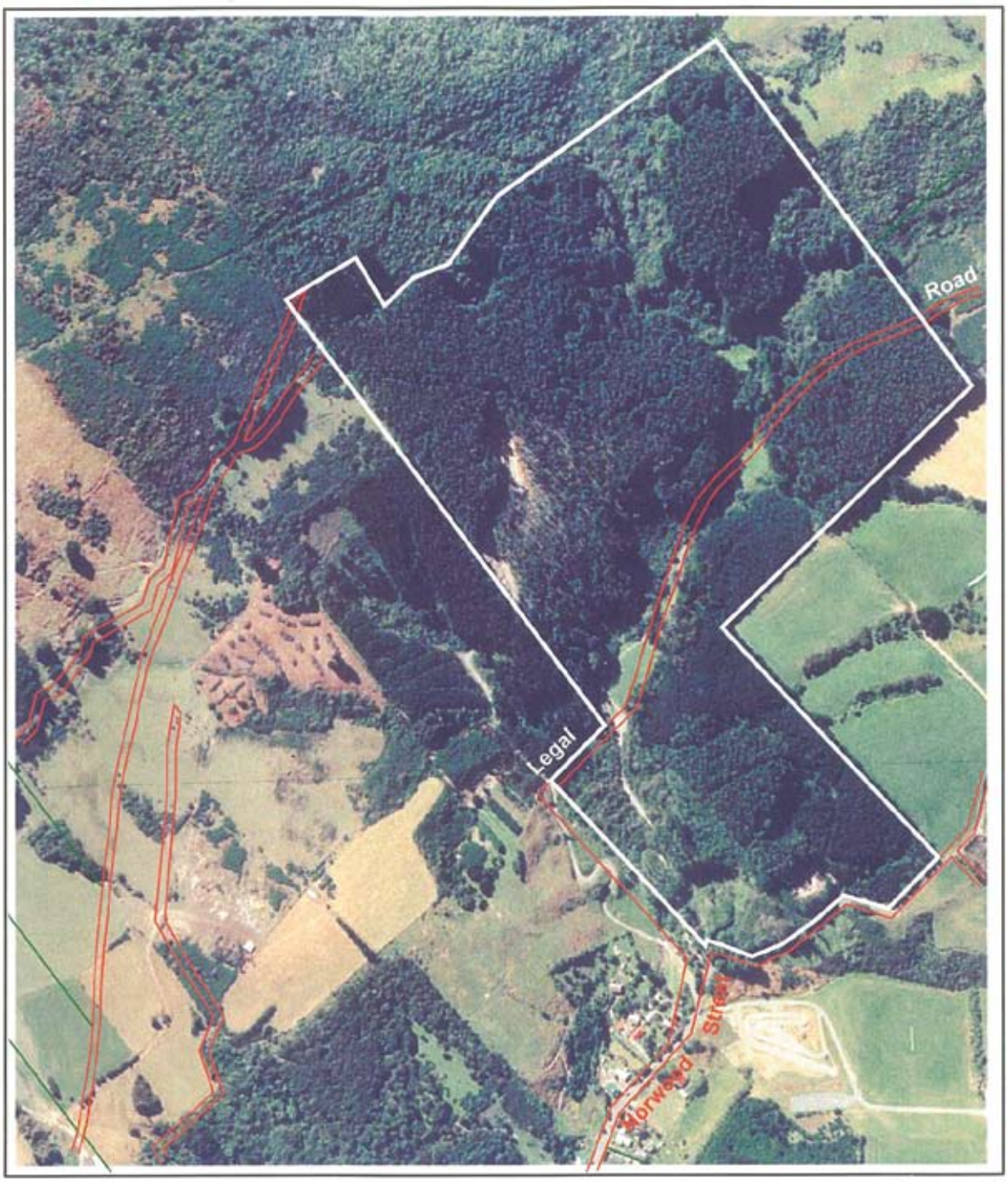
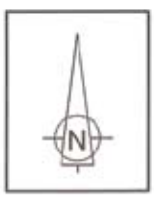
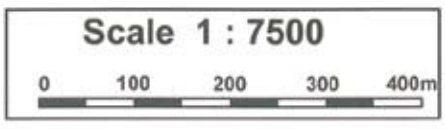
Figure 2.2 Bethunes Gully Reserve: Aerial Photograph of Land Units



Bethunes Gully Reserve 43.7832ha





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5.3 Braeview Crescent Reserve

Introduction

Braeview Crescent Reserve, often considered to be part of Ross Creek, and known locally as either Ross Creek or Braeview Crescent Reserve, is located between Braeview Crescent and Woodhaugh St. The reserve forms a physical link and walking track between Woodhaugh Gardens and the Ross Creek Reservoir area. The walking track and surrounding area was developed by the Otago Regional Council in 1998 as part of their streamscape development programme.

This area is fee simple land and therefore is not a reserve under the Reserves Act 1977. Braeview Crescent has been included because it has recreation values and adjoins Ross Creek Reservoir land. Therefore, similar management to the other reserves in this plan is appropriate. Such areas will be managed under this management plan as if they were reserves.

Vegetation

A few large willows still remain on the reserve, now surrounded by the native species planted by the Otago Regional Council. *Muehlenbeckia australis*, which once dominated this reserve, still grows profusely on the bank on the true right of the Water of the Leith.

Access

Pedestrian access is available from Clarewood Ave, Malvern St, Woodhaugh St, and from the Ross Creek Reservoir track.

A pedestrian right-of-way (Area A DP 300146) exists across Lot 8 DP 9417 between Braeview Crescent Reserve Lot 9 DP 9417 and Ross Creek Reservoir Land Part Block XI SO 439. This provides access to Ross Creek.

Use

The recently developed track provides a link between Woodhaugh Gardens and the Ross Creek Reservoir area. Interpretative panels provide historic information, particularly with regards to floods and the structures in the Water of the Leith. Structures, such as rock traps, can be seen from the walkway.

Figure 3.1 Braeview Crescent Reserve: Diagram of Land Units

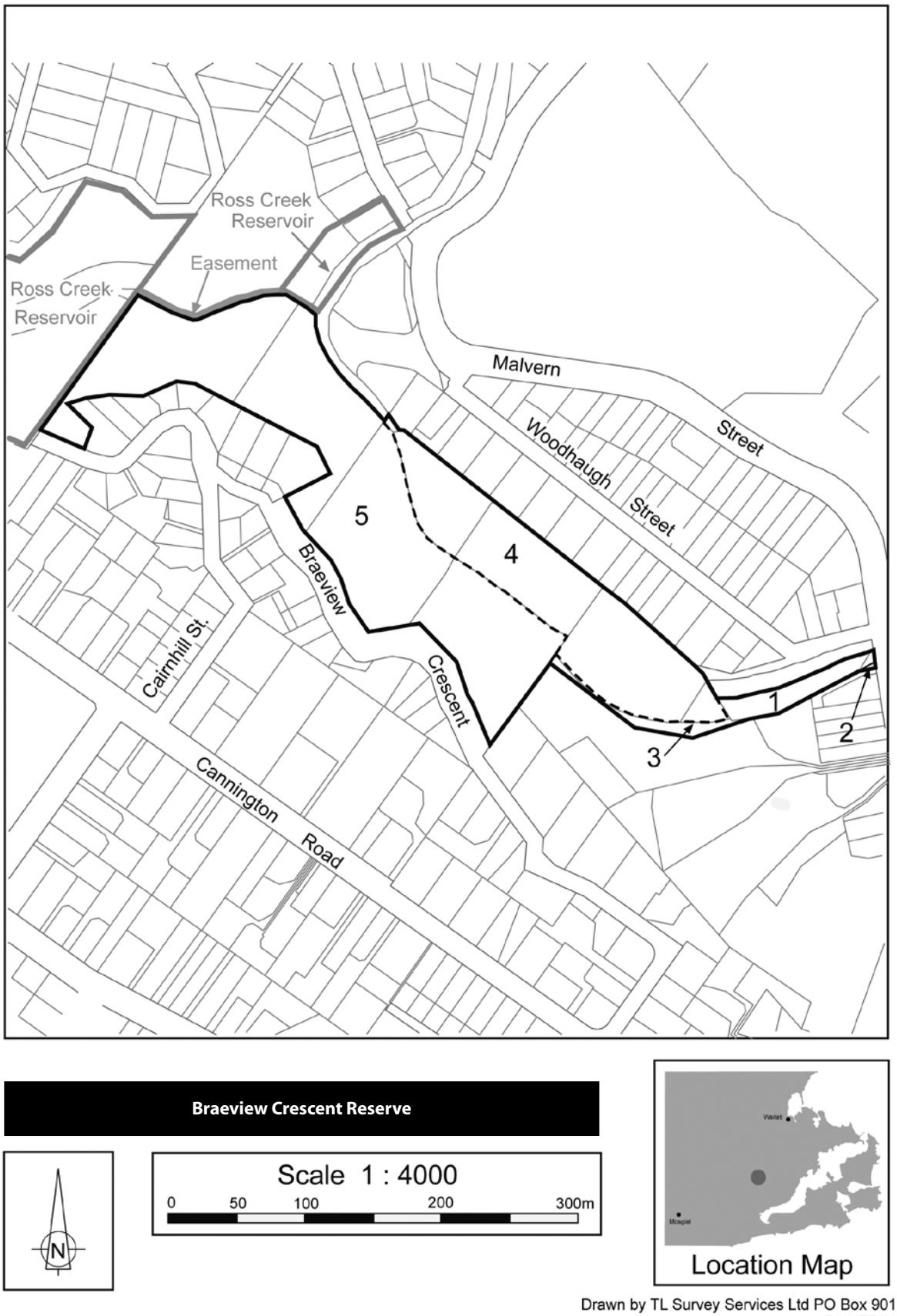
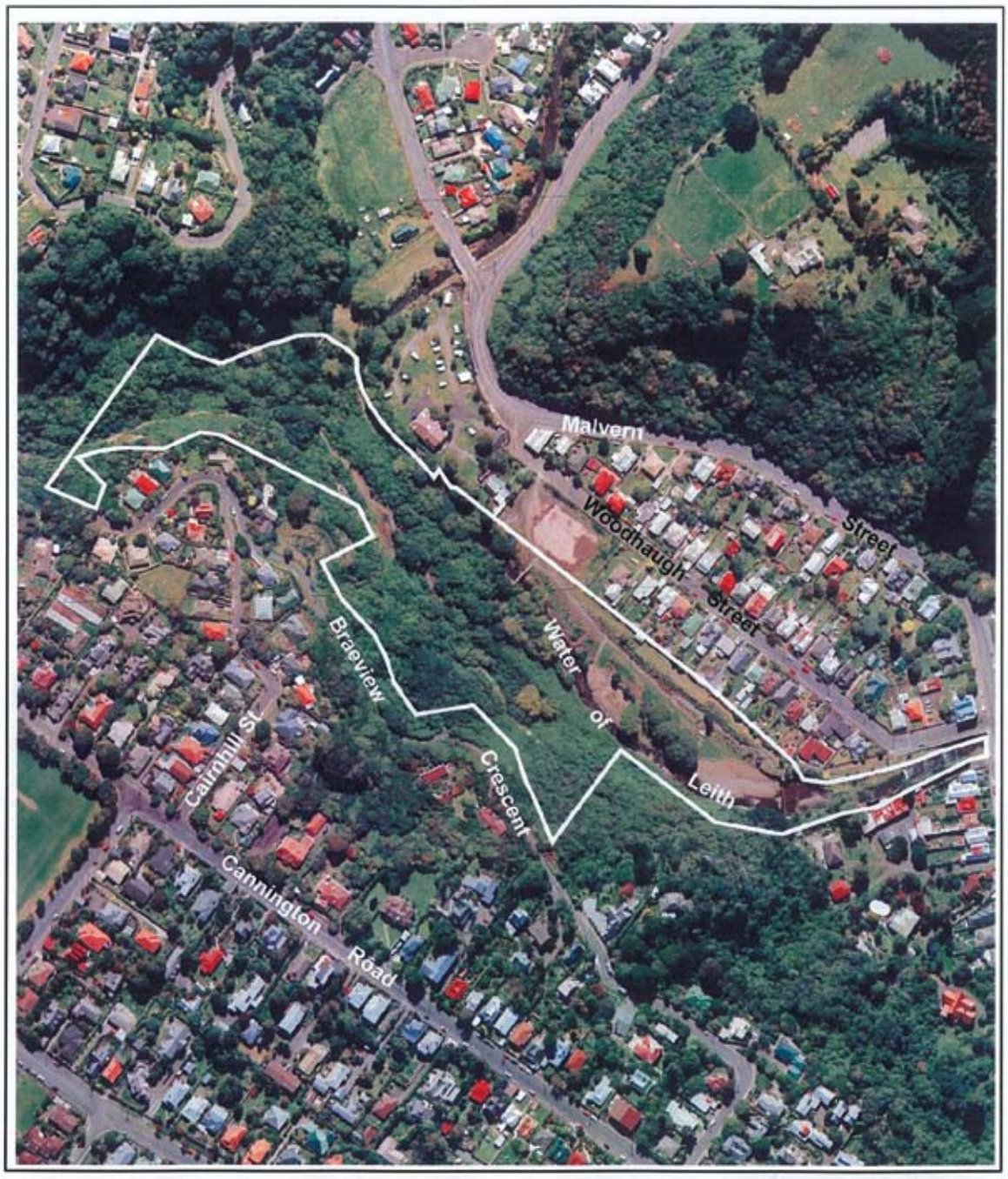


Figure 3.2 Braeview Crescent Reserve: Aerial Photograph of Land Units



5.4 Chingford Park Bush

Introduction

Chingford Park is located 4.5 km north east of the city centre on North Road in the North East Valley. The bush area contributes 9 ha of the total 19 ha of Chingford Park. A combination of sports fields, an archery area, children's play ground, historic buildings, and the bush area make up the area known as Chingford Park.

This area is fee simple land and therefore is not a reserve under the Reserves Act 1977. Chingford Park Bush has been included because it has recreation and scenic values. Therefore, similar management to the other reserves in this plan is appropriate. Such areas will be managed under this management plan as if they were reserves.

This management plan refers only to the management of the area of mixed bush to the north of the park. Pt Lot 29, DP 4921, being the sports fields and lower Chingford Park area, are managed under the *Sports Ground Management Plan*. The *Sports Ground Management Plan* should be consulted for information or policies relating to this lower area.

History

Chingford Park derived its name from the English home of a Dr. Andrew Buchanan who built the original residence in 1862. In 1936 the City Council purchased Chingford Park from P.C. Neill for recreational purposes and set about providing sports fields and planting trees on much of the hillside.

The bush area was purchased from Mr T.C. Hall in 1987 for addition to the park. This area has one of the few remaining stands of rimu trees in Dunedin.

Landscape

Chingford Park is located on the northern slope of North East Valley, being the historic remnant of the old Chingford Estate. The quality and character of the park is mixed, changing from heavily modified sports fields at the bottom of the park to revegetating native vegetation at the top. While the park is an important open green space for North East Valley, views of the park are largely limited to within the valley rather than the entire city.

The Landscape of the park is open green space with well-established ornamental trees with bush to the north. The park's green space breaks up the local built environment that is dominated by residential housing.

Vegetation

The area consists of a moderate to steep south-east aspect slope, the lower part of which is mainly in exotic-dominated forest. The mid slope carries tall kanuka scrub, and the upper area is in native broadleaved forest with many emergent rimu. The vegetation at the top end of the reserve is of poor quality due to stock damage to the under canopy.

The exotic-dominated forest has a canopy of mainly sycamore and European beech with a variety of other common introduced species. The understorey is a mixture of native and exotic species. Ground cover is variable with mainly native ferns, and native and exotic herbaceous species. Vines are scattered throughout.

The native bush area includes podocarps, mahoe, red matipo, broadleaf, wineberry, lancewood, and other broadleaf species. The understorey is fairly open with scattered fuchsia, coprosma and peppertree. Exotic species occur around the perimeter of the stand. Ground cover is sparse due to grazing by stock straying in from adjoining properties. Vines are found throughout.

At the base of the park are a number of sports fields, well-maintained amenity areas and mature exotic tree specimens surrounding the historic Chingford Stables.

Use

Public use of the upper bush area is negligible at present, although occasional walking groups or runners may access this area via the right-of-way across private property connecting with Campbells Road.

An easy loop track exists in the bush area behind the old stables and house site. The track is often used by families or children who may be involved with activities in other areas of the park as it allows for easy fun exploration of the bush area and a bit of exercise.

A variety of sporting groups use the park. The park, with its high amenity value is also commonly used for events, festivals, weddings, picnics and other social and informal occasions.

Over the years children's play was catered for with the development of play equipment while the bush areas and Lindsay's Creek provided natural adventure for local children. The site is now popular for family picnics and organised sport, such as cricket and soccer, with archery set up on the southern end of the ground.

Access

The main access into Chingford Park is at the gates on North Road but there is also access off Afton Terrace and foot access off Ainslee Place. There is some vehicle parking on site but it is limited and generally restricted.

A Right of Way exists through a paddock from Campbells Road to the bush area. Some restrictions have been placed on the use of this ROW by the landowner. Purchase of the ROW will be further investigated in the future if required to facilitate better access.

Development

Development of a track linking to Bethunes Gully via Campbells Road would create a circular track using the road and the track in the lower area of Chingford Park. This is an option that could be given further consideration in the future if resources permitted.

Management Issues

The goat population on the reserve causes problems, and ongoing monitoring and wild animal control is occurring to maintain or enhance the quality of the reserve.

Figure 4.1 Chingford Park Bush: Diagram of Land Units

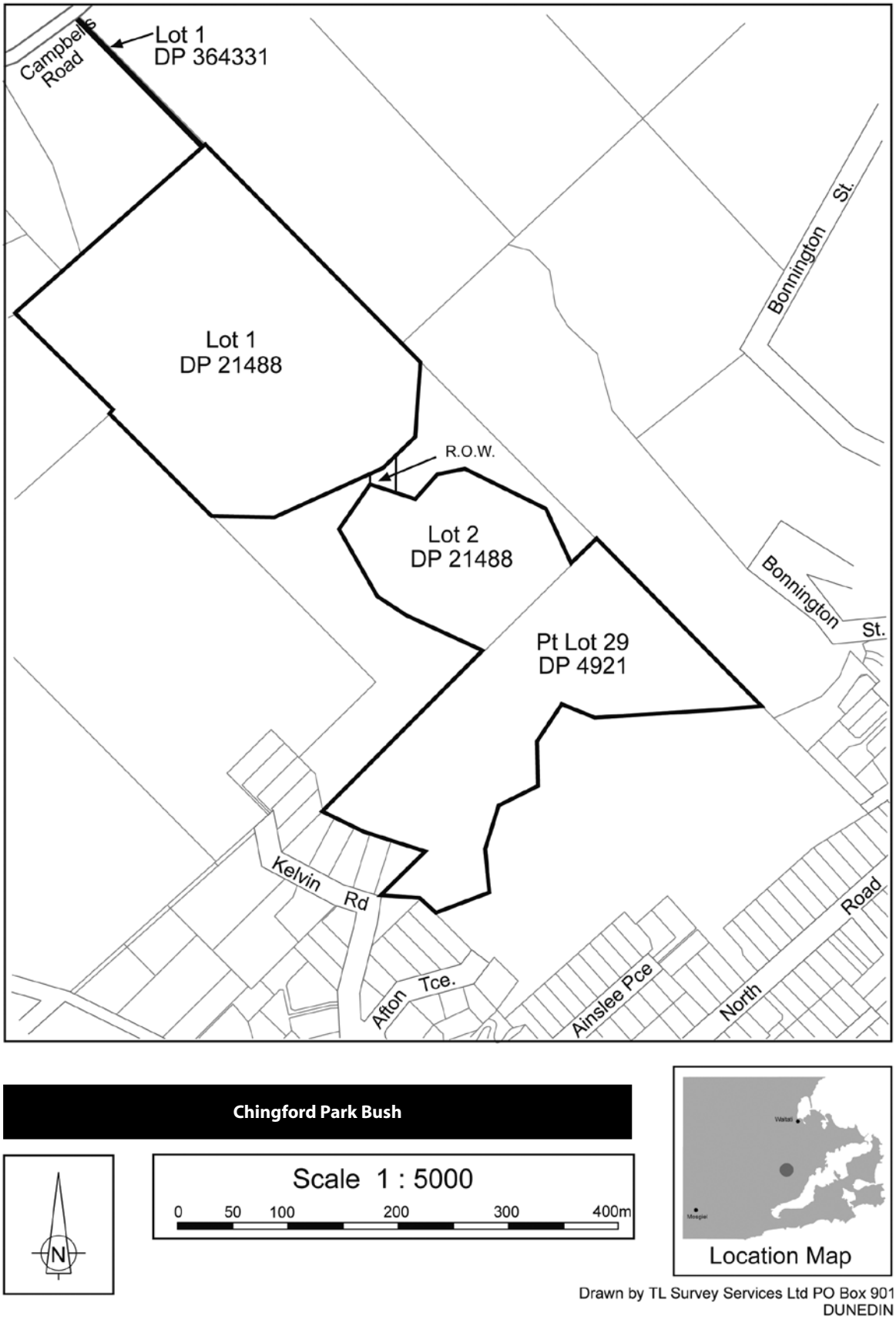


Figure 4.2 Chingford Park Bush: Aerial Photograph of Land Units

5.5 Flagstaff Scenic Reserve

Introduction

Flagstaff Scenic Reserve (103 ha) is located eight kilometres to the west of Dunedin on the Flagstaff-Whare Flat Road. The reserve straddles the summit, basin and upper slopes of the Flagstaff Hill, lying roughly north–south, which forms the western boundary to the suburbs of the urban core of Dunedin City. The reserve encompasses tussockland and mixed tussock-shrubland surrounding the summit of Flagstaff Hill; a flat topped 668 m high hill overlooking the north-western suburbs of Dunedin City.

The reserve boundaries are indistinct on the ground as it merges into the large expanse of adjacent water catchment land. The land has been modified, particularly by fire and grazing, but still retains its basic 19th century character of tussock grassland and shrubland.

Flagstaff Scenic Reserve is one of several reserves that encircle the skyline of the urban core of Dunedin City forming a backdrop of indigenous vegetation for an otherwise urban environment. These skyline reserves give Dunedin City a unique character in comparison to any other New Zealand city. Much of the vegetation in the reserve is dominated by *Chionochloa rigida* (narrow-leaved snow tussock), enabling Dunedin residents and visitors to walk to a snow tussockland within an easy day trip from the city. If they travel via the Ross Creek Reservoir they pass through forest, shrubland and tussock grassland vegetation types.

Flagstaff Scenic Reserve is the best, easily accessible, example of narrow-leaved snow tussockland in the immediate vicinity of Dunedin City. The different successional stages make a useful educational resource for school and university groups.

History

In pre-European times, Mt. Flagstaff was known by the local Ngai Tahu people as 'Waka-ari' meaning 'the north-west wind'. This was corrupted to Wakari because of the name of the suburb on its seaward lope. The mountain range was called 'Whakaari' meaning 'uplifted to view'. No doubt the then bush-clad slopes were regularly visited by parties gathering fruits, e.g., konini, makomako, rubus berries, or hunting for birds, and for the distant views of areas of coastal and Central Otago.

The European settlers initially called the area Mt Kettle after Charles Kettle who surveyed out the street plan of Dunedin in 1846. The name Mt. Flagstaff was a product of European settlement and its westward expansion spurred on by the gold rushes in central and west Otago. In those days, the main land route from the north was via the "mountain track" along the ridgetops of the Silverpeaks massif to Flagstaff. Flag staffs were erected to mark the route to Hightop, hence the name.

In 1905 the first area of the Scenic Reserve was gazetted, under the Scenery Preservation Act of 1903. Mr J. Wycliffe Baylie had presented the land to the Crown in order to see the preservation of the bush, which formed an attractive and popular backdrop to the City. By 1910 fire had destroyed most of the bush and gorse and broom infested the area.

Between 1932 and 1975, the land was vested in the Dunedin City Council for tree planting purposes. Public reaction to the proposal in the early 30's caused the Crown to institute a set of conditions upon the tree planting operations, one of which precluded afforestation "above 1,500 feet above sea level". This condition rendered the tree planting intent ineffective, as most of the Reserve was a higher elevation.

By the 60's the area was again popular as a recreation area, particularly for its scenic qualities. Thus, in 1975, the land was again gazetted as a Scenic Reserve.

The Flagstaff track was developed as a Walkway under the New Zealand Walkways Act. It must therefore be managed in accordance with the New Zealand Walkways Act 1990 as well as the other acts which prescribe management of the reserve.

Landscape

Flagstaff Scenic Reserve is located on the upper slopes of Flagstaff and, along with Mt Cargill and Swampy Summit, Flagstaff completes the natural amphitheatre enclosing the urban centre of Dunedin. Like these other reserves, Flagstaff is highly visible and therefore sensitive, with any potential development on the reserve likely to result in a major visual effect.

This reserve is an outstanding part of the landscape of Dunedin. Its commanding views, interesting vegetation types and wide range of bird species ensure a very high level of public utilisation. The landscape and recreation values of this reserve are enhanced by being part of a much larger area of indigenous vegetation (much of it regenerating from past disturbances) such as Swampy Summit, the Silverpeaks Range, and the Ross Creek reservoir. The Otago Conservation Management Strategy (Department of Conservation 1998) indicates that the Flagstaff Scenic Reserve is of high conservation importance.

While Flagstaff exhibits the same visual qualities and importance as Mt Cargill, the vegetation cover of the reserve gives it quite a different character and atmosphere. At roughly the same altitude as Mt Cargill, the vegetation cover of Flagstaff is predominantly sub-alpine consisting mainly of tussocks, mountain flaxes and some small olearias. There are also a couple of examples of *Aciphylla* (speargrasses) in the area, but there are few shrubs of any substantial size, and no mature trees.

Vegetation

All of the tussocklands on Flagstaff are part of a successional phase following past disturbances by fire probably dating from the time of Polynesian settlement about 1200 AD; if this disturbance is not repeated the tussocklands will develop into a shrubland and eventually a forest community. After humans arrived in New Zealand (c.7-800 years ago) a large portion of the coastal Otago region was converted from a mostly indigenous forest cover to snow tussockland following anthropomorphic fires. In the last 200 years most of this tussockland below about 800 m elevation has been converted to pasture grassland and other land uses such as forestry.

Ten indigenous and exotic vegetation types have been described in the Ecological Assessment report. These are outlined below.

1. Manuka (*Leptospermum scoparium*) – whahariki; mountain flax (*Phormium cookianum*) / narrow-leaved snow tussock (*Chionochloa rigida*) shrubland
2. Broom (*Cytisus scoparius*) – gorse (*Ulex europaeus*) – Rarauhe, bracken (*Pteridium esculentum*) shrubland
3. Broom (*Cytisus scoparius*) – gorse (*Ulex europaeus*) – narrow-leaved snow tussock (*Chionochloa rigida*) – whahariki; mountain flax (*Phormium cookianum*) shrubland
4. Broom (*Cytisus scoparius*) – whahariki, mountain flax (*Phormium cookianum*) / narrow-leaved snow tussock (*Chionochloa rigida*) – tautinu, cottonwood (*Ozothamnus leptophyllus*) – *Olearia arborescens* tussock-shrubland
5. Wilding conifers / Broom (*Cytisus scoparius*) – gorse (*Ulex europaeus*) scrub
6. Narrow-leaved snow tussock (Chionochloa rigida) – whahariki; mountain flax (Phormium cookianum) tussockland

6a. Gorse (*Ulex europaeus*) – Broom (*Cytisus scoparius*) / narrow-leaved snow tussock (*Chionochloa rigida*) – whahariki, mountain flax (*Phormium cookianum*) shrub – tussockland

7. Manuka (*Leptospermum scoparium*) – tautinu, cottonwood (*Ozothamnus leptophyllus*) / narrow-leaved snow tussock (*Chionochloa rigida*) shrub-tussockland
8. Manuka (*Leptospermum scoparium*) scrub
9. Broom (*Cytisus scoparius*) – gorse (*Ulex europaeus*)- whahariki, mountain flax (*Phormium cookianum*) scrub and shrubland
10. Pahautea, cedar (*Libocedrus bidwillii*) / broadleaved species – inaka (*Dracophyllum longifolium*) forest

Flagstaff Scenic Reserve forms an interesting comparison with the neighbouring Swampy Summit; Flagstaff is dominated by narrow-leaved snow tussock (*Chionochloa rigida*) while much of the tops of Swampy Summit is dominated by copper (red) tussock (*Chionochloa rubra ssp. cuprea*).

Pest Plant and Animals

Broom (*Cytisus scoparius*), gorse (*Ulex europaeus*), wilding conifers (i.e. *Pinus radiata*, Douglas fir), and Darwin's barberry (*Berberis darwinii*) are spreading rapidly and the Ecological Assessment report discusses options for their control. It appears that mammalian pest numbers are relatively low. Active management will be required for weeds and animal pest species, including continued monitoring of their presence.

If the aim is to preserve the important range of successional vegetation types around Dunedin City then disturbance (perhaps in the form of fire) could be considered as a tool at Flagstaff. Options in relation to fire management and its advantages and disadvantages are discussed in this report.

Pest plants

Flagstaff Scenic Reserve contains a relatively small number of adventive species (such as gymnosperms, dicotoledons, grasses, and herbs), most of which pose no threat to the indigenous communities. However the open nature of much of the vegetation means that a small number of woody ecological weed shrub and tree species could potentially have major effects on the vegetation composition of this reserve.

Broom (*Cytisus scoparius*), gorse (*Ulex europaeus*) and wilding conifers (mostly Douglas fir (*Pseudotsuga menziesii*) and *Pinus radiata*) are spreading rapidly and pose serious short-term threats to the integrity of indigenous tussock and tussock-shrubland vegetation. *Erica lusitanica* (Spanish heath), which is an invasive species in some neighbouring tussocklands, could become a problem at Flagstaff in the future.

Darwin's barberry (*Berberis darwinii*) has the potential to invade intact indigenous associations and its fruit is dispersed widely by birds. Annual monitoring will be required to check for new infestations.

Mammalian pests

The abundance of seedlings and saplings of palatable indigenous species such as Broadleaf, papauma (*Griselinia littoralis*), Three-finger, orihou (*Pseudopanax colensoi*), mahoe; whiteywood (*Melicytus ramiflorus*) and Hall's totara (*Podocarpus hallii*) in certain areas indicates relatively low numbers of mammalian browsers in tall forest communities. Some goats are likely to be present in the area. There is a low level of hare browsing on some tussock and grassland species.

Future management actions should aim to maintain this low level of browsing pressure by monitoring animal pest populations (and their effects) and responding to any increase in numbers.

Fauna

Avifauna

The most significant avifauna feature is the presence of fernbird. A formerly widespread bird species which has been greatly reduced in distribution due to the destruction of its preferred habitat (low stature, wet scrub and shrub-tussockland).

Invertebrate fauna

Flagstaff Scenic Reserve is significant for low-alpine native insects occupying extensive areas of snow-tussock/herbfield and limited areas of shrubland. Seepages and small streams drain the lower slopes with excellent riparian cover.

Key habitats for the conservation of native invertebrates are:

- Snow-tussock/scattered shrubland/speargrass areas on the upper rocky slopes
- Seepages and small streams on the lower slopes

Snow-tussock, Shrubland, Speargrass on Upper Rocky Slopes

Snow-tussock and shrubland areas are alive with native insects throughout the summer with the noisy cicada *Kikihia angusta* being the most conspicuous. A large flightless weevil *Anagotus lewisi*, the longhorn beetle *Mesolamia marmorata*, and a short-horned grasshopper species *Sigaus australis*, are found in these grasslands. Two species of tussock butterfly, several diurnal geometrid moths and local day-flying tiger moth are also present.

Seepages and Small Streams on Lower Slopes

Some interesting aquatic insects inhabit small streams on the lower margins of the reserve, such as the caddis species *Olinga fumosa*. The brown and black stonefly, and New Zealand's only scorpionfly, the local *Nannochorista philpotti* are also present.

Management Issues

Management issues that threaten the important invertebrate values present in the reserve include:

- Gorse (*Ulex europaeus*) spread in the tussock grasslands
- Fires perpetuated by humans
- Spread of wilding trees changing constitution of grasslands
- Spread of woody weeds on lower western faces
- Mammalian pests that feed on foliage which is important to the native invertebrates directly or pests that feed directly on the insects

Topography

Flagstaff Hill rises from low foothills to a plateau summit of 668 metres. From the summit ridge, running roughly north–south, the Reserve extends westward including the shallow basin and low knolls, while the relief continues northward as a series of moderate upland hills, basins and dissecting gullies.

Adjoining Land Uses

Other Council land and small areas of privately owned property surround the reserve. The Flagstaff Forest plantations extend up to the Flagstaff-Whare Flat road and much of the remainder is DCC Water Catchment.

The reserve forms the southern 'gateway' to the tussock uplands of the Silverpeaks massif. Much of this land is in public ownership, with recreation a major land use.

To the northwest of Flagstaff summit lies the Ben Rudd block of approximately 45 hectares owned by Otago Tramping and Mountaineering Club. The Club purchased the block in 1946 from the Ben Rudd estate. The initial afforestation programme was stopped in 1973 and the main plantation was felled in 1989. The focus has now changed to restoring native vegetation. Management of the property has been transferred to the Ben Rudd Management Trust.

The Bull Ring was a staging area for stock being driven into Dunedin. The Ben Rudd Management Trust have begun re-establishing foot access along the old Bullock Track which was used as an early northern route out of Dunedin. The track follows along Spiers Road and the Bullock Track (both legal roads) through private property, the scenic reserve and over to the Ben Rudd block.

Use

The tracks through the reserve are very popular for walkers/trampers, as they link through to Swampy Summit, providing opportunities for walks of varying lengths and timeframes. The 4WD track through flagstaff is also used by mountain bikers.

The reserve is occasionally use by the Red Cross Emergency Response Unit and other similarly involved groups for search and rescue exercises.

Access

Road access to the Reserve is via the Flagstaff-Whare Flat Road, with car park and entrance at the "Bullring". The old bullock track from Spiers Rd in Halfway Bush provides foot access along the line of the unformed legal road. Access is also available from Leith Valley via the Pineapple Track Walkway, from the Morrison Burns track and the extension of Nichols Falls track on the water catchment land.

Figure 5.1 Flagstaff Scenic Reserve: Diagram of Land Units

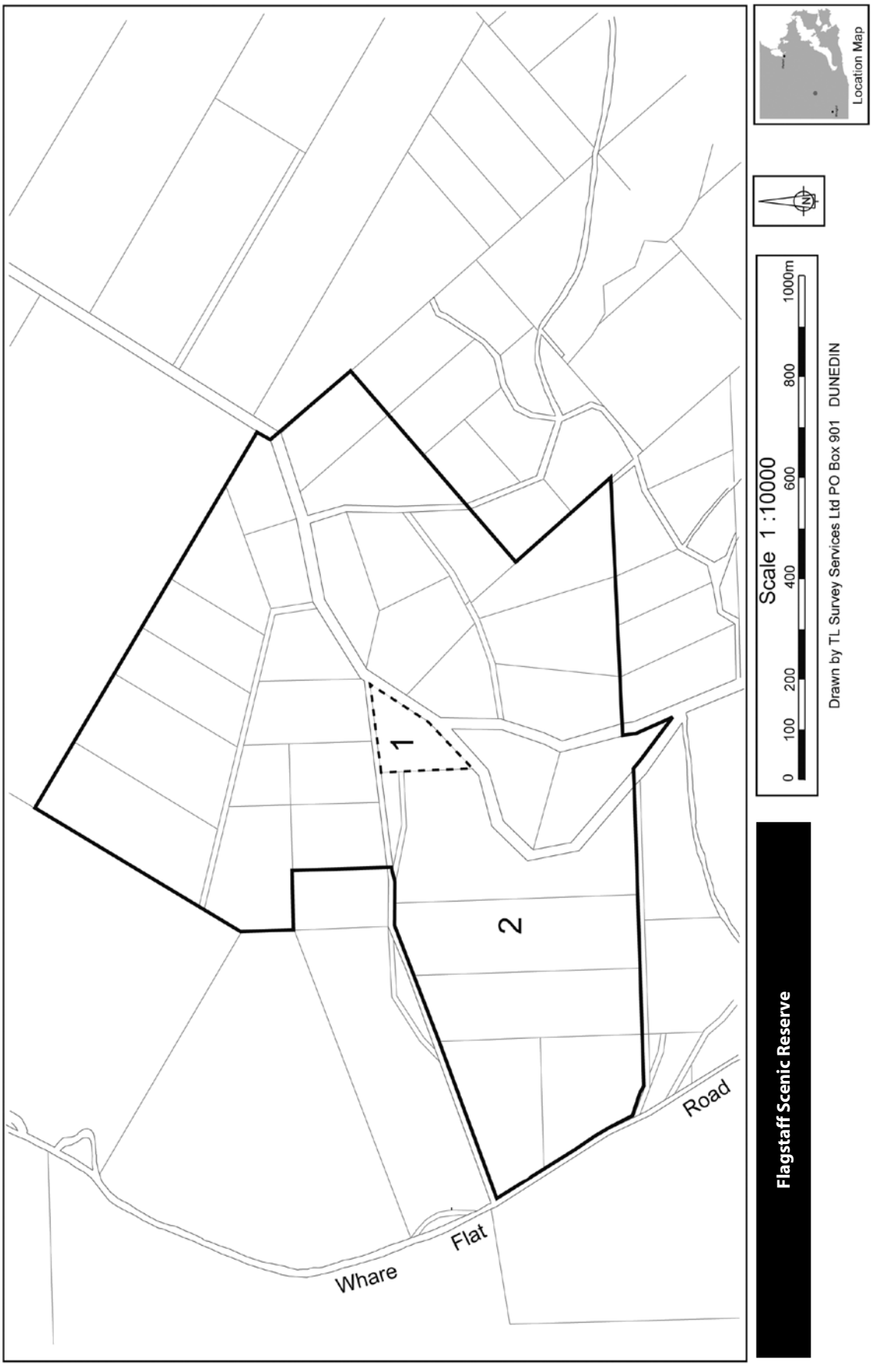
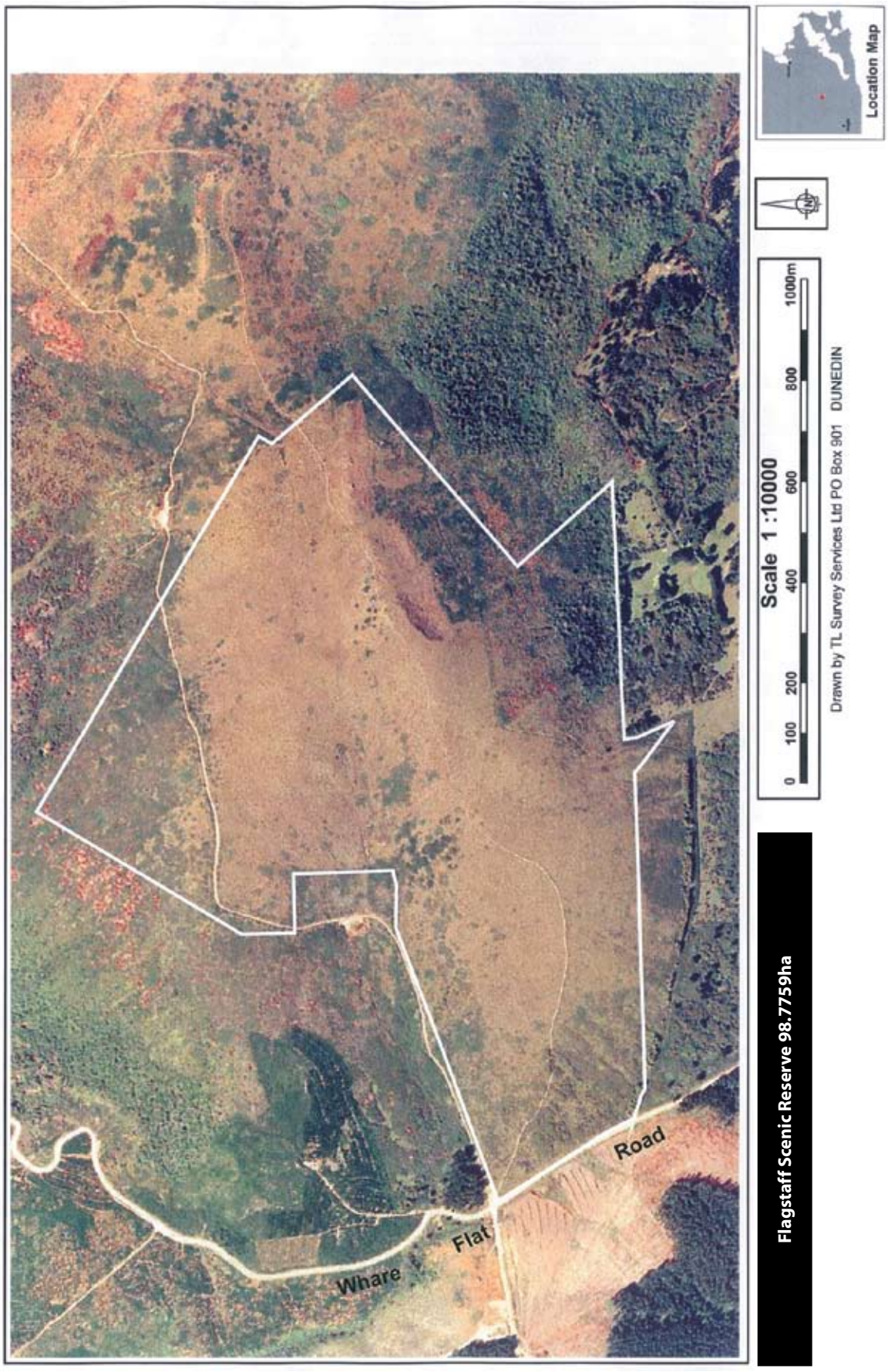


Figure 5.2 Flagstaff Scenic Reserve: Aerial Photograph of Land Units



5.6 Frasers Gully Recreation Reserve

Introduction

Frasers Gully Recreation Reserve (45 ha) is located 3 km west of the city centre on Frasers Rd. The Lower sections of the reserve contain some open space areas that adjoin Ellis Park (sports fields). The walk through native bush besides the stream provides a tranquil area that seems miles away from anywhere, right in the heart of an urban area. A planting programme funded by McDonalds has facilitated the planting of native species at the start of the walk in the more open areas.

Frasers Gully Recreation Reserve adjoins Tilburn Street reserve, which in turn adjoins Ashmore Street Reserve.

Frasers Gully Recreation Reserve is an important area of vegetation in the suburbs surrounding Dunedin City, providing a tree-dominated landscape in an otherwise urban setting. The reserve surrounds the Kaikorai Stream and its tributaries.

Frasers Gully Recreation Reserve encompasses steep gully slopes and ridges surrounding the upper reaches of the Kaikorai Stream and tributaries. The Dunedin City suburbs of Halfway Bush, Glenross, and Brockville flank the reserve. Vegetation is a mix of mature secondary native forest, regenerating forest and planted adventives.

Frasers Gully is a popular recreational area and an important part of the landscape of the surrounding suburbs. The Otago Conservation Management Strategy (Department of Conservation 1998) states that reserves play an important part in maintaining the quality of the visual setting of Dunedin City for residents and visitors.

History

In 1887 the Crown granted large areas of the present site to the Borough of Roslyn. In 1938 Lot 6, which had originally been given for cemetery purposes, was declared a reserve for recreation and made part of the Roslyn Domain. Lot 7 and 8 originated as a result of a realignment of fences within the Housing Corporation subdivision in Turnbull St, Brockville and were vested in the Council in 1981 and called the Roslyn Domain prior to their addition to Frasers Gully Recreation Reserve in 1983.

Access

Vehicle access is via Frasers Road to the car park. Pedestrian access is via Dalziel Road and from Tilburn Reserve, although no formal track exists between the reserves. The Gate at the end of the first car park is locked to prevent access through to the second car park. This is to prevent damage being caused to the sports fields.

Landscape

Frasers Gully Recreation Reserve covers a substantial area between the suburbs of Brockville and Halfway Bush as well as linking with Ellis Park Reserve to create a strong connection to Kaikorai Valley. The reserve has a generally steep topography being located within a gully and is vegetated by a mix of regenerating native species, forestry plantations and exotic species. A stream runs the length of the reserve, which the track generally follows, providing the reserve with a unique natural atmosphere not normally associated with urban parks.

When combined with the adjoining reserves of Ashmore Street and Tilburn Street, the bush covered gully has a major impact on the visual character of the immediate area as well as helping to define the areas of Brockville and Halfway Bush. The reserves combine to provide an important physical and visual element providing a break in the urban framework. The impact of this reserve is however mainly restricted to this area rather than the entire city.

Vegetation

Thirteen vegetation types are mapped and described for the Frasers Gully Recreation Reserve in the Ecological Assessment report, these are outlined below. Some types are largely dominated by adventive tree species such as the cypress plantation and the sycamore (*Acer pseudoplatanus*) – tarata, lemonwood (*Pittosporum eugenioides*) forest.

1a. Makomako, wineberry (*Aristotelia serrata*) – pate (*Schefflera digitata*) – kotukutuku, tree fuschsia (*Fuchsia excorticata*) scrub

1b. Makomako, wineberry (*Aristotelia serrata*) – sycamore (*Acer pseudoplatanus*) scrub

2. Vegetation types dominated by adventives in the southern section of Frasers Gully

2a. Ash – sycamore/ makomako, wineberry (*Aristotelia serrata*) forest

2b. Mown grassland

2c. Pine plantation

2d. Cypress plantation

2e. Sycamore (*Acer pseudoplatanus*) – tarata, lemonwood (*Pittosporum eugenioides*) forest

3. Kanuka (*Kunzea ericoides*) forest and treeland

4. Kotukutuku, tree fuschsia (Fuchsia excorticata) scrub

5. Mahoe, whiteywood (*Melicytus ramiflorus*) – broad-leaved species forest

5a. Eucalyptus globules / crack willow (*Salix fragilis*) forest

6. Kowhai / mahoe; whiteywood (*Melicytus ramiflorus*) – broadleaved species forest

7. Pasture
8. Broom (*Cytisus scoparius*) shrubland
9. Podocarp / mahoe; whiteywood (*Melicytus ramiflorus*) – broadleaved species forest
10. Broom (*Cytisus scoparius*) – Rarauhe, bracken (*Pteridium esculentum*) / blackberry (*Rubus fruticosus*) rank pasture shrubland
11. Gorse (*Ulex europaeus*) – broom (*Cytisus scoparius*) /rank pasture shrubland
12. Grazed pasture
13. Kanuka (*Kunzea ericoides*) forest

Pest Plants and Animals

There are several weed and animal pest species present within the Frasers Gully Recreation Reserve. Weed species that should be monitored and managed include sycamore (*Acer pseudoplatanus*) and Darwin's barberry (*Berberis darwinii*), and there is an ongoing threat from garden escapes. Mammalian pest species will need to be monitored and if they are having a significant impact(s) then control measures should be implemented.

Pest plants

Frasers Gully Recreation Reserve contains a large number of weed species. These can be placed in three categories based on the level of threat they pose, as set out below:

(i) Invasive ecological weed species that pose a threat to intact indigenous forest: sycamore (*Acer pseudoplatanus*) and Darwin's barberry (*Berberis darwinii*).

(ii) Weeds which may be invasive in other climates or vegetation types but which, in the absence of large scale disturbance, are unlikely to invade indigenous forest in this reserve: broom (*Cytisus scoparius*), gorse (*Ulex europaeus*), montbretia (*Crocosmia* × *crocosmiiflora*), blackberry (*Rubus fruticosus*), great bindweed (*Calystegia arborea*, elder, buddleia (*Buddleja davidii*), *Pinus radiata*, crack willow (*Salix fragilis*), and cotoneaster.

(iii) Weed species that have a limited ability to invade indigenous vegetation: all other adventive species.

Although some areas have high weed populations, most of the reserve has a relatively low density of ecological weed species.

It is important, however, to note that the close proximity of urban areas means there is a high risk of new weed species establishing from garden escapes, organic waste dumping, or unauthorised plantings.

The key issues are control of infestations of ecological weed and damage caused by public usage.

Fauna

Fish

Fish surveys of major rivers around the general location of Frasers Gully have indicated the presence of a number of species (Allibone 1997). While the stream running through Frasers Gully Recreation Reserve has not been specifically surveyed, results for the Kaikorai Stream are likely to be similar, indicating the following species may occur:

Anguilla dieffenbachii	shortfinned eel
Galaxias eldoni	inanga
Gobiomorphus cotidianus	common bully
Rhombosolea retiaria	black flounder
Salmo trutta	brown trout

Invertebrate fauna

The key invertebrate habitats in the reserve are:

- Moist broadleaved forest and its margins
- Stony streams, seepages and the shady moist riparian margins

Moist Broadleaved Forest and Margins

A myriad of bugs, wasps, flies, beetles, stick insects and moth larvae feed and depend on *Muehlenbeckia australis*. In addition a great many spider species of many different families, predate this diverse insect fauna. Significant insects are the large green shield bug *Oncacontias vittatus* and stem boring moth *Morova subfaciata*, which is particularly common here and two species of undescribed copper butterflies that have important colonies here. An undescribed ground weta is common here and may be endemic to eastern Otago. Also living on the soil surface or just below it is the nationally rare carabid beetle *Mecodema morio*. Damp forest floor herbs are the habitat of a yellow coloured geometrid *Asaphodes prasinias*. While grassy glades or riparian margins are home to a tiny colourful, diurnal moth of a family (Mnesarchaeidae) that is endemic to New Zealand. The primitive species *Mnesarchaea paracosma* is a surprise inhabitant of Dunedin City, where it is localised, feeding on liverworts in damp areas. The reserve harbours a large population of the smooth stick insect *Mimarchus salebrosus*.

The reserve contains few podocarps, with the low numbers of Hall's totara (*Podocarpus hallii*) supporting two lacewing species, many spiders, specialised moth larvae and beetles.

Bare clay banks are colonised by a small active tiger beetle species *Neocicindella parryi*, with both the burrowing larvae and adults fierce predators.

Stony Streams, Seepages and Riparian Margins

In its natural state, Frasers Stream contained an important and diverse array of native aquatic insects including mayflies, caddis, a dobsonfly, and stonefly species. Species of interest include a newly described stonefly and an undescribed species of caddis genus *Edpercivalia*.

Use

Frasers Gully is very popular for family picnics, walks, and children's play. Dogs are permitted as long as they are under control, and this activity is a popular one on the reserve.

There are several potential areas of conflict between conservation values and the use of the Frasers Gully Recreation Reserve. Public education is recommended to discourage people from using informal tracks because this brings about small-scale degradation to indigenous ground fauna habitat. If further extensions are made to transmission lines in the reserve then the aim should be to limit disturbance to indigenous vegetation and to plant disturbed sites with locally sourced indigenous species. There is also a concern that the discharge of surplus Dunedin water, sourced from Deep Stream (in the Lammerlaw range) into the Frasers Stream channel will have a detrimental impact on the natural aquatic invertebrate fauna.

Transpower has the following existing high voltage transmission line traversing the Frasers Gully Recreation Reserve: Gore – Halfway Bush A 110kV single circuit on poles. Plans indicating the location of these transmission lines are available from the Transpower Environmental Group, and should be sought to assist with planning development of the reserve.

Management Issues

The current designation as a recreation reserve undervalues the conservation values of this reserve. In fact, the reserve contains a highly diverse native invertebrate fauna reflecting the range of ecosystems present in the various sub-catchments of Frasers Stream.

Management issues for this reserve that are relevant to the native invertebrates and their habitats are:

- Discharge of surplus Dunedin City water supplied from Deep Stream in the Lammerlaw Range, down the Frasers Stream channel. Both the volume and imported invertebrate composition of this water is a threat to the natural fauna present
- Informal tracks through the reserve, generally made by young people on the steeper slopes for easy access or shortcuts to the Kaikorai Valley
- Mammalian pests that feed on foliage which is important to the native invertebrates directly or pests that feed directly on the insects

Figure 6.1 Frasers Gully Recreation Reserve: Diagram of Land Units

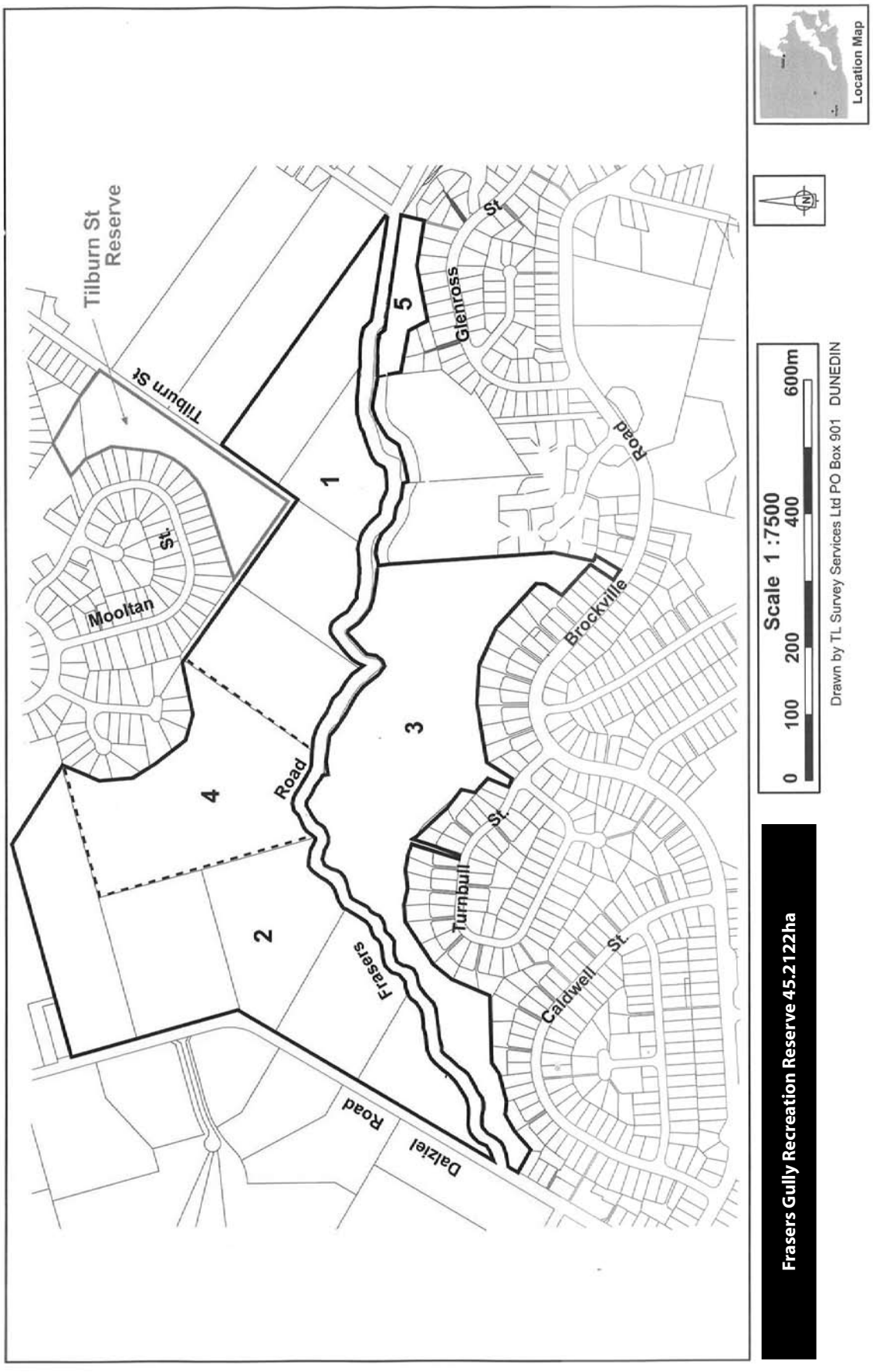
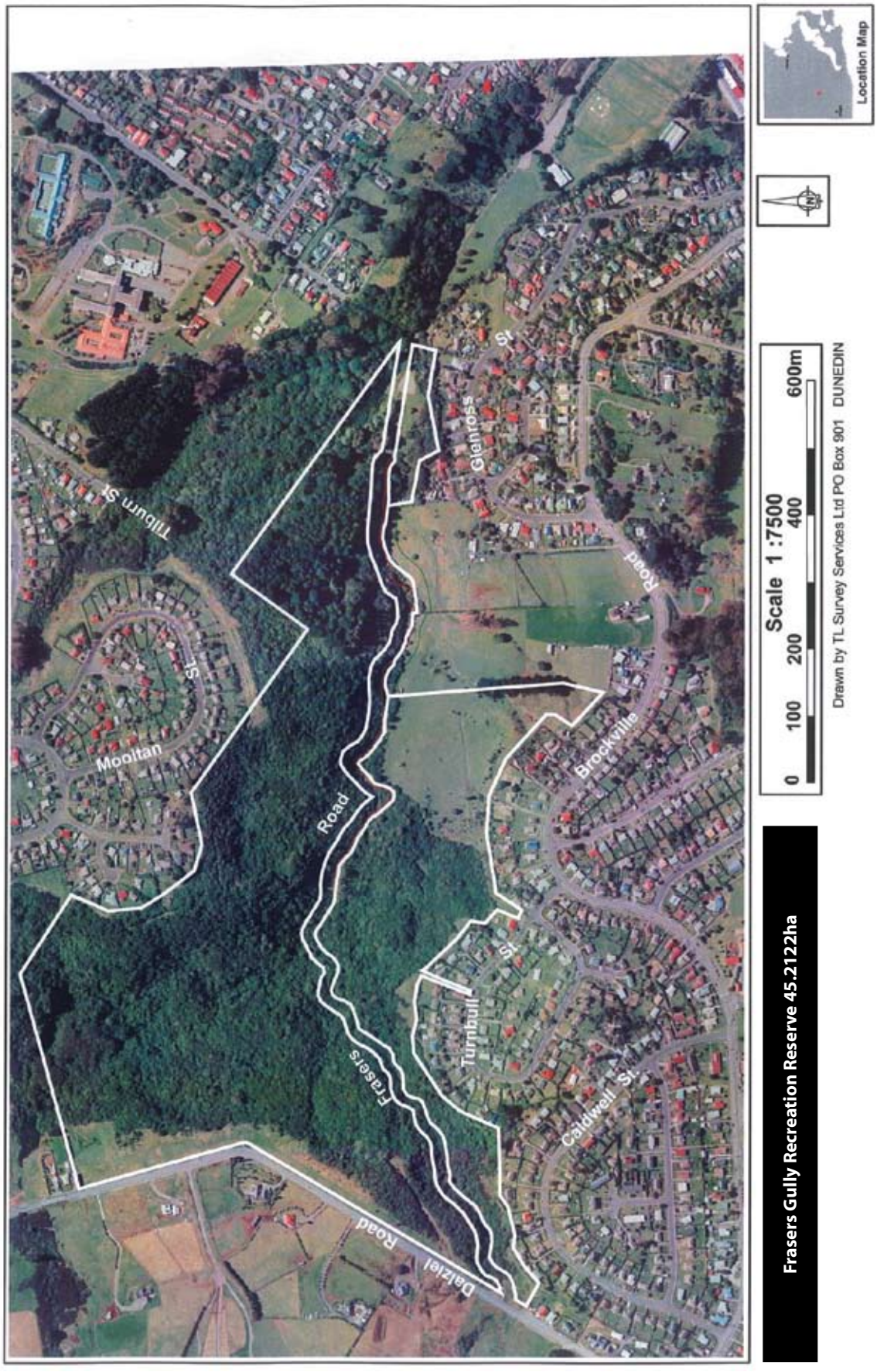


Figure 6.2 Frasers Gully Recreation Reserve: Aerial Photograph of Land Units



5.7 Kaikorai Scenic Reserve

Introduction

Kaikorai Scenic Reserve (4 ha) is located 3 km west of the city centre on Glenelg Street. The reserve adjoins Sanda Road Recreation Reserve. The reserve was gazetted for scenic purposes in 1912, control of the reserve was vested in Council in 1930 and it was classified as scenic reserve in 1988.

Landscape

The Kaikorai Scenic Reserve is located on the eastern slope above Kaikorai Valley Road forming an important green area between Kaikorai Valley and Brockville. The reserve has an excellent coverage of native vegetation enhancing the natural quality of the area. However, the visual importance of the area is not high with the reserve being visually contained within the valley and the lack of any high quality viewing points.

Vegetation

The reserve largely contains regenerating manuka with occasional totara and rimu occurring. There is very little understorey throughout most of the reserve.

Access

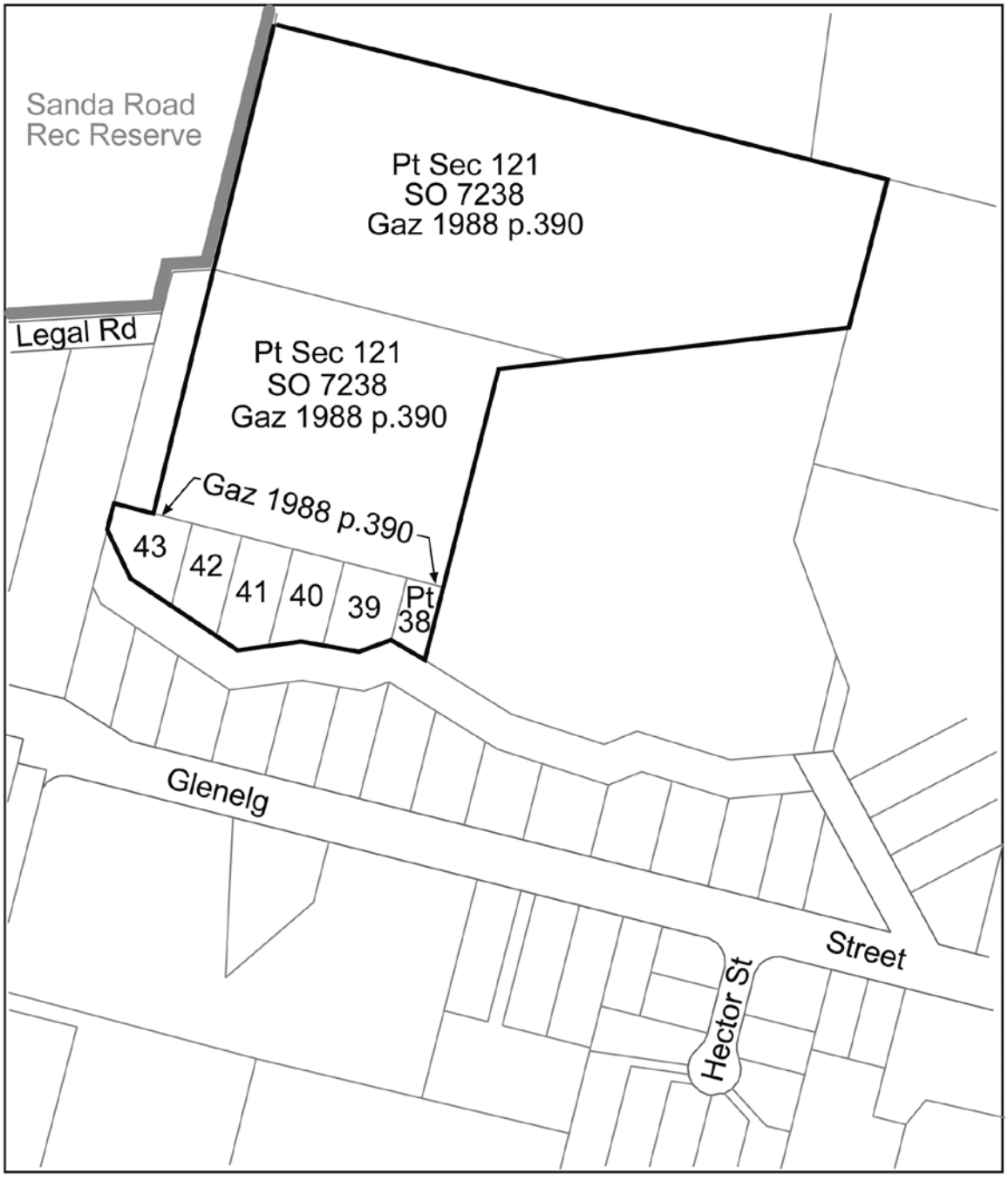
Access is from Glenelg and Cockerell Streets and Sanda Road.

Management Issues

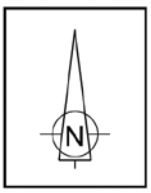
There is the potential for weeds to spread from properties bordering the reserve.

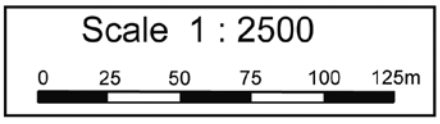
Due to the landlocked nature of the reserve, access is via two unformed legal roads or through Sanda Road Recreation Reserve. This situation makes access by the general public somewhat difficult. The need for better access may need to be considered in the future.

Figure 7.1 Kaikorai Scenic Reserve: Diagram of Land Units



Kaikorai Scenic Reserve 4.0292ha





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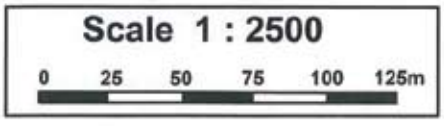
DUNEDIN

Figure 7.2 Kaikorai Scenic Reserve: Aerial Photograph of Land Units

Kaikorai Scenic Reserve 4.0282ha



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5.8 Mount Cargill Scenic Reserve

Introduction

Mt Cargill Scenic Reserve (264 ha) is located at the slopes of Mt Cargill and is accessed by vehicle via Cowan Road, in a north east direction 11km from the city centre. The summit lookout provides panoramic views of the hinterland, the harbour, and the coast for many kilometres both north and south. The reserve includes the area of scenic reserve above Bethunes Gully Recreation Reserve, which may have in the past been considered as Bethunes Gully Scenic Reserve, although never formally named as such.

Mt Cargill (Kapukataumahaka) is a prominent landmark of Dunedin City and can be seen from many parts of the city and the Northern Motorway. With several other areas of indigenous vegetation it forms a backdrop of indigenous vegetation on the Dunedin skyline, a feature giving Dunedin a special natural character. The reserve is an important educational resource for schools and university groups, and the general public. This reserve system allows Dunedin residents and visitors to be able to experience a unique array of vegetation types over reasonably wide elevational range within close proximity to Dunedin City.

Mt Cargill Scenic Reserve includes the summit ridge and moderately steep upper slopes of Mt Cargill, Butters Peak, Mt Zion and Mt Holmes. The ridge system is volcanic in origin and dominates the north-eastern skyline of Dunedin City and the northern route into Dunedin.

The Mt Cargill Scenic Reserve is an outstanding part of the Dunedin landscape. Its commanding views, interesting vegetation types and a wide range of bird species ensure a very high level of public utilisation. The Otago Conservation Management Strategy (Department of Conservation 1998) confirms that the Mt Cargill Scenic Reserve has high conservation values.

History

In 1932 Mt Cargill was vested in the Council from the Crown for tree planting purposes. The area was later considered not to be appropriate for tree planting and Council did not proceed with commercial planting. In 1968 the vesting as tree planting reserve was revoked and Mt Cargill was set apart pursuant to the Land Act 1948 as a scenic reserve. A majority of the reserve as we now know it was vested in the Council in 1974 as scenic reserve with additional areas being vested at various times during the 1980's.

The area of reserve on the lower slopes of Mt Cargill (Sections 79 and 80, previously informally considered as Bethunes Gully Scenic Reserve) was made up of a number of different land parcels purchased at various times between 1930 and 1962. A majority of the land was purchased from Mr Thomson (See Bethunes Gully Reserve for historical detail) and additional lots at the head of Bethunes Gully were purchased from the Supreme Court under the Rating Act 1925 (unpaid rates) in 1950 and from the Farquhar Estate (The Trustees Executors and Company of New Zealand Ltd) in 1962. Council passed a resolution in 1984 declaring these sections to be scenic reserve. This resolution did not take effect until 2005 when the land was formally gazetted. The land was initially intended to be part of Mt Cargill Scenic Reserve, as it provided the link between two areas of Mt Cargill Scenic Reserve. The area has informally been considered as Bethunes Gully Scenic Reserve over the years, but under this plan is now considered as part of Mount Cargill Scenic Reserve.

The Maori name for Mt Cargill (Kapukataumahaka) relates to its significance as a site for snaring birds. Kereru (New Zealand pigeon) would gorge themselves on Broadleaf, papauma (*Griselinia littoralis*) berries and were captured when they stopped to drink from snared water troughs.

Mt Cargills' 3 peaks are, by Maori legend, the head, body, and feet of the petrified body of a princess of an early Otakou tribe.

Landscape

Mt Cargill Scenic Reserve occupies the summit of Mt Cargill and dominates the skyline of much of the city. The reserve on the lower slopes contributes to the substantial green block, along with Bethunes Gully, that provides the back drop to North East Valley. The natural landform of the reserve is steep with the occasional rock outcrop, such as the 'Organ Pipes', breaking the thick vegetation layer that covers almost the entire reserve. The area generally exhibits a coherence and continuity of natural characteristics that are highly valued, with the exception of the Communications Tower and Buildings that are situated on the summit.

Vegetation

Fourteen different vegetation types are described in the Ecological Assessment Report for Mt Cargill Scenic Reserve (these are listed below), indicating a relatively high diversity. These types represent a history of past disturbance and changes to the localised environment with altitude and other climatic variables. This reserve contains the largest and most coastal example of montane coniferous-broadleaf forest in the Otago Region, the best example of montane scrub and one of only four remaining remnants of indigenous *Nothofagus menziesii* (silver beech) forest in the Dunedin Ecological District (Ward and Munro 1989).

Mt Cargill Scenic Reserve is of particular scientific interest as it is one of the reserves that demonstrates

the effects that climate can have on successional vegetation communities. Mt Cargill is a wetter, humid, climate due to its proximity to moist coastal winds and has been isolated by the continuously wet forests of Leith Saddle from the periodic fires that swept out of Central Otago during the period of Polynesian occupation before European settlement. The reserve has a succession community on the summit dominated by indigenous woody shrubs. (Wardle and Mark 1956). The reserve is easily accessible to interested school, university and community groups.

See the Mt Cargill vegetation section of this plan for more information regarding Bethunes Gully.

The vegetation has been modified extensively by previous human activity, most recently by fires lit at the turn of the century (Ward and Munro 1989). Today the lower slopes of the reserve are covered in a mixture of broadleaved and broadleaved-coniferous forest, grading into sub-alpine scrub and shrubland on steep upper slopes.

The Mt Cargill Scenic Reserve includes the largest and most coastal example of montane coniferous-broadleaved forest in the Otago Ecological Region, the best example of montane scrub, and the largest one of only four remaining remnants of *Nothofagus menziesii* forest in the Dunedin Ecological District (Ward and Munro 1989).

The vegetation within the reserve also varies. The lower areas on the southern side and the majority of the northern slopes are covered in well-established native coniferous-broadleaved forest with some excellent examples of mature native conifer trees. On the southern side, however, there is a noticeable change in vegetation cover between an area on the upper slopes that is regenerating native scrub (an earlier stage of succession) and mature forest on the lower slopes. This change in vegetation is thought to be the result of fire around the turn of the 20th century with the line being where the fire stopped. The regenerating forest is made up largely of flaxes, coprosmas and a variety of small tree species.

The reserve is also noted for its excellent examples of pahautea, cedar (*Libocedrus bidwillii*) that are clearly visible from both within and outside of the reserve.

The only threatened species found in the reserve is the lichen *Steinera sorediata* which occurs on rocks near the summit of Mt Cargill and which has a disjunct distribution with a site on Mt Taranaki.

Vegetation cover types on the Mt Cargill Scenic Reserve:

1. Coprosma spp. – inaka (*Dracophyllum longifolium*) – mixed broadleaved spp. scrub
2. Hall's totara (*Podocarpus hallii*) / kotukutuku, tree fuschsia (*Fuchsia excorticata*) forest
3. Rimu (*Dacrydium cupressinum*) / tarata, lemonwood (*Pittosporum eugenioides*) – kotukutuku, tree fuschsia (*Fuchsia excorticata*) – kohuhu (*Pittosporum tenuifolium*) – mahoe; whiteywood (*Melicytus ramiflorus*) forest
4. Pahautea, cedar (*Libocedrus bidwillii*) – pink pine (*Halocarpus biformis*) – Hall's totara (*Podocarpus hallii*) / mixed broadleaved spp. forest
5. Inaka (*Dracophyllum longifolium*) – tautinu, cottonwood (*Ozothamnus leptophyllus*) – Olearia scrub
6. Manuka (*Leptospermum scoparium*) – pink pine (*Halocarpus biformis*) – Mountain toatoa (*Phyllocladus alpinus*) forest
7. Kanuka (*Kunzea ericoides*) – broadleaved spp. forest
8. Rimu (*Dacrydium cupressinum*) / tarata, lemonwood (*Pittosporum eugenioides*) – kotukutuku, tree fuschsia (*Fuchsia excorticata*) – kohuhu (*Pittosporum tenuifolium*) forest with scattered patches of pahautea, cedar (*Libocedrus bidwillii*) / mixed broadleaved spp. forest
9. Coprosma spp. – mixed broadleaved spp.- gorse (*Ulex europaeus*) scrub
10. Manuka (*Leptospermum scoparium*) – gorse (*Ulex europaeus*) – broom (*Cytisus scoparius*) / Agrostis capillaries – sweet vernal (*Anthoxanthum odoratum*) grassland
11. Silver beech, tawhai (*Nothofagus menziesii*) forest
12. Rimu (*Dacrydium cupressinum*) – miro (*Prumnopitys ferruginea*) – Hall's totara (*Podocarpus hallii*) / Broadleaf, papauma (*Griselinia littoralis*) – tarata, lemonwood (*Pittosporum eugenioides*) – mixed broadleaved spp. forest
13. Utilities Areas
14. Mixed indigenous-adventive scrub

Area types 1, 14, and 15 listed in the Ecological Assessment Report are relevant only to the Bethunes Gully Recreation Reserve.

Pest Plants and Animals

Some weed and animal pest species require active management in Mt Cargill Scenic Reserve. Radiata pine (*Pinus radiata)*, Himalayan honeysuckle (*Leycesteria formosa)*, gorse (*Ulex europaeus*), broom (*Cytisus scoparius*) and Darwin's barberry (*Berberis darwinii*) will need to be monitored and controlled. Several mammalian pest species, particularly possums and goats,

are present in the reserve and it is important that they are monitored and their numbers controlled if their impacts increase.

Most of the vegetation types in Mt Cargill Scenic Reserve are relatively weed free and resistant to future invasion, assuming that they remain undisturbed. However there are a number of low-density populations of ecological weed species in Mt Cargill Scenic Reserve, particularly around the margins and at disturbed sites along the summit ridge.

The relative abundance of seedlings and saplings of palatable indigenous species indicates relatively low numbers of mammalian browsers. Goats have been shot on the reserve over the last few years but goats continue to reinfest the reserve from adjoining properties. Future management actions should aim to maintain this low level of browsing pressure by monitoring animal pest numbers and responding to any increase in their densities. Possums and goats are the main browsing threat in the reserves and at times may pose major pest problems. Possums can have a significant impact on native vegetation, particularly pahautea and Hall's Totara. Browse of deer and goat is having significant adverse effects on regeneration of broadleaf, an important subcanopy species. The level of impact caused by goats is currently not monitored. If the university or some other group were interested in researching the impact of goats on native vegetation, the construction of exclosure plots would be permitted.

Control of hares may help the regeneration of indigenous species along the summit ridge.

Fauna

Avifauna

As indicated above, the Maori name for Mt Cargill (*Kapukataumahaka*) relates to its significance as a site for snaring birds. While fires in the late 19th century destroyed most of the tall forest cover on Mt Cargill's upper slopes, Broadleaf, papauma (*Griselinia littoralis*) is still a prominent feature in the extant vegetation and both reserves contain good populations of many indigenous bird species, including kereru (Hemiphaga novaeseelandiae), which is nationally threatened.

A variety of native and introduced species is found in the reserve. The most significant bird species present is fernbird – a formerly widespread species that has been greatly reduced in distribution due to the destruction of its preferred habitat, low stature, wet scrub.

Invertebrate fauna

Mt Cargill Scenic Reserve is significant in terms of indigenous invertebrates as it harbours uncommon, local and rare species in a variety of vegetation communities.

- Small area of low-alpine zone
- Sub-alpine shrubland
- Montane moist forest
- Relict silver beech, tawhai (*Nothofagus menziesii*) forest
- Podocarp/Broadleaved Forest
- Stony Streams and Seepages

Low-Alpine Zone

Tussock butterfly and a variety of moth species, including some rarely found ones, are present in this zone. A surprising diversity of alpine species is present on this tiny alpine "island". Although the native insect species of this habitat are widespread low-alpine species, their presence here is important as they are part of a rare community on this mountaintop.

Sub-alpine Shrubland

Two cicada species and various moth species are found in this zone. One of the most interesting insects of this community is an uncommon casemoth species that is found attached to lichen-encrusted rock-faces.

Montane Moist Forest

Three uncommon plutellid moths, a rare ennomid moth and several other uncommon moths are found in this zone. Lower down the mixed broadleaved forest is inhabited by quite different insects. A large carabid beetle, some rare moths, and a species of peripatus that is endemic to the Dunedin area are found in this zone.

Nothofagus menziesii Forest

A relict stand of *Nothofagus menziesii* (silver beech, tawhai) found in this zone supports a full complement of moth species that feed solely on it. Shady streams in this zone are home to several caddis, stoneflies and mayflies, and the newly described, large black stonefly.

Podocarp/Broadleaved Forest

A large number of native invertebrates inhabit this cool, wet forest. Dunedin's most conspicuous spider, the large orange *Porrhothele antipodiana* is relatively common in this forest where it lives on the moist forest floor. A tipulid fly, endemic to Dunedin City and undescribed in the genus *Zelandotipula* has been found in this forest.

The New Zealand ant lion *Mermelion acutus* is known only from two populations in the southern and eastern South Island, one of them on the lower slopes of Mt Cargill within the Reserve. Another nationally rare lacewing species is found in this forest. Noisy clapping cicadas are not a feature of southern New Zealand but the large *Amphipsalta zelandica* is found here in one of its few southern colonies.

Stick insects are a feature of this reserve with at least five species recorded.

Stony Streams and Seepages

An impressive range of aquatic insects inhabit stony streams, including 21 caddis, ten stoneflies and four mayfly species.

Management Issues

Management issues for this reserve that threaten the significant invertebrate conservation values are:

- Gorse (*Ulex europaeus*) spread on the summit ridges replacing native communities
- Additional telecommunication facilities on the summit further encroach on the very limited low-alpine vegetation (an instance of this occurred within the last six years, which led to permanent damage to the localised plant and insect communities)
- Mammalian pests that feed on foliage that is important to the native invertebrates directly, or pests that feed directly on the insects

Geology

Mount Cargill was formed during the third main eruption phase of the Dunedin Volcanic Complex.

The Organ Pipes are an important geological feature formed from Basalt rock and referred to as a "jointed basalt plug". They are about 10 million years old and were formed during the cooling of lava that flowed across the summit. The laval crust very quickly solidified over the molten lava, it then cooled only very slowly, as rock is a poor conductor of heat. While liquid, it cooled and contracted. It could adjust to the contractions by liquid movement. However, as it solidified the rock became subjected to tension in both horizontal and vertical directions. This tension could only be relieved by cracking and this led to the Pipes being formed.

Topography

The lower slopes of the scenic reserve, up to about 350m, have moderate slopes and the vegetation consists of broadleaved forest.

Further up towards the summit of Mount Cargill are steeper slopes, with rocky outcrops and the vegetation consists of a mixed shrubland containing rare tall tussocks.

A ridge runs from the summit of Mount Cargill in an easterly direction taking in Butters Peaks, Mount Zion and Mount Holmes. Steep slopes lead off either side of this ridge. This ridge system forms the skyline visible from Dunedin City and the Northern Motorway into Dunedin.

Access

Vehicle access is available to the summit of Mount Cargill via Cowan Road to the site of the Television Transmitter.

Foot access is available via the A H Reed walk, the Organ Pipes walk which commences from the Mount Cargill Road car park, and the Mount Cargill walk which commences in the car park of Bethunes Gully.

Broadcasting Station on Mt Cargill

The Broadcasting Communications Ltd (BCL) has had leases with the Council since 1966 for their facility on Mt Cargill and access to it. This will continue as at present.

The buildings are not permitted to extend beyond the designated area (D310 in the Dunedin City District Plan). Any further development of transmission facilities may disturb existing vegetation. It is recommended that disturbance is kept to a minimum and where it does occur the affected area should be planted with locally sourced indigenous species. Disturbance to other areas would also require re-instatement.

As technology changes, if these facilities are no longer required they should be removed by BCNZ and the site re-instated in a manner acceptable to Council.

Additional Land

Lots 1-7, DP 18407, and Pt section 92, Block VII, North Harbour and Blueskin SD are currently administered by the Department of Conservation. Historical records indicate agreement was reached with the Department of Conservation that land owned by the Department that adjoined Mt Cargill Scenic Reserve would be transferred to Council for management. The areas were surveyed, but actions stalled and the transfer was never completed. This proposal may need to be revisited in the future. Where land is acquired adjacent to the reserves in this plan, or added to a reserve in this plan, it will be managed in accordance with this plan.

Lot 2 DP 300206 has recently been purchased by the Department of Conservation. If this land ever transfers to the Council it would be managed under this plan as part of the Mt Cargill Scenic Reserve.

Figure 8.1 Mount Cargill Scenic Reserve: Diagram of Land Units

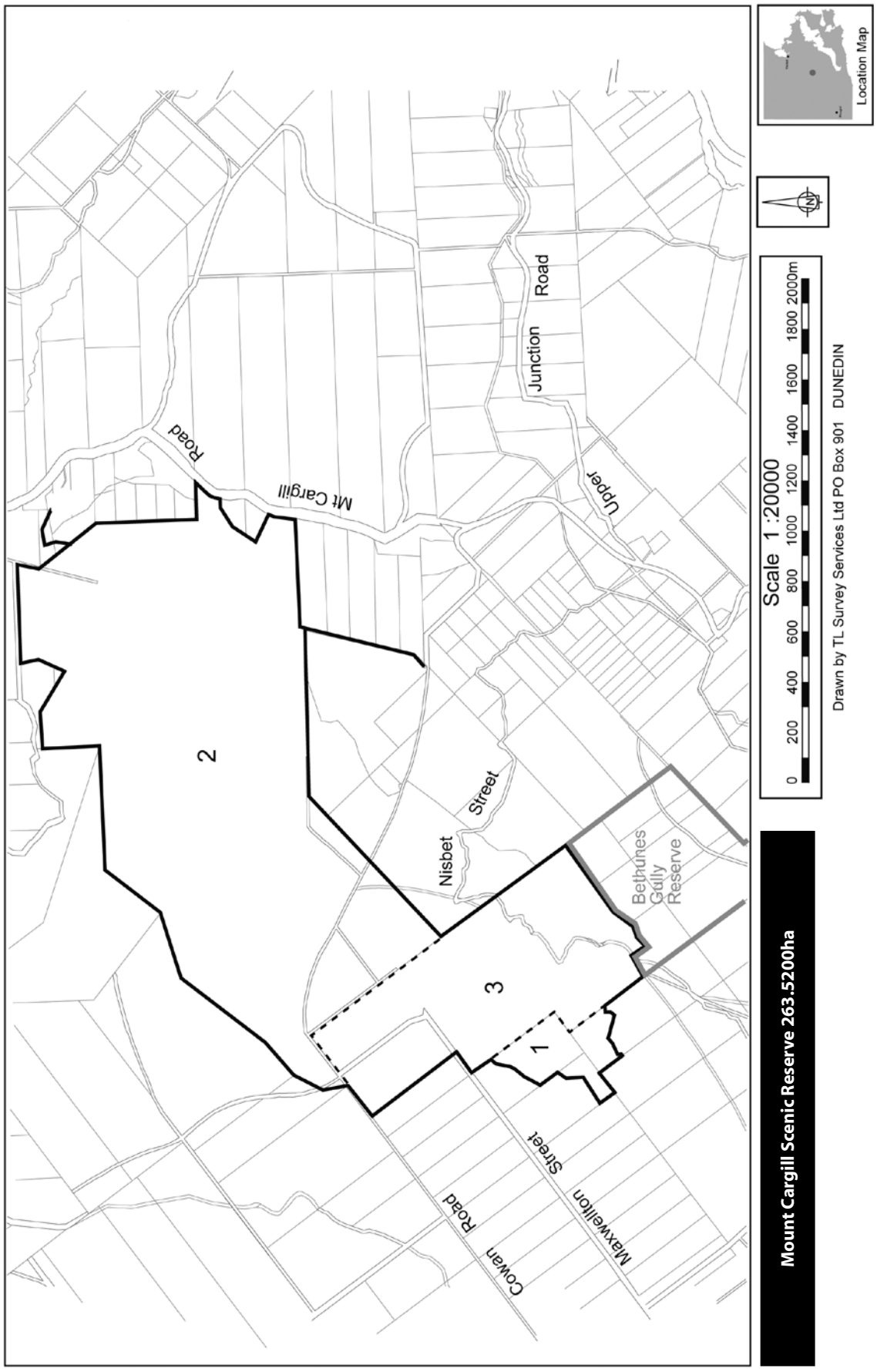
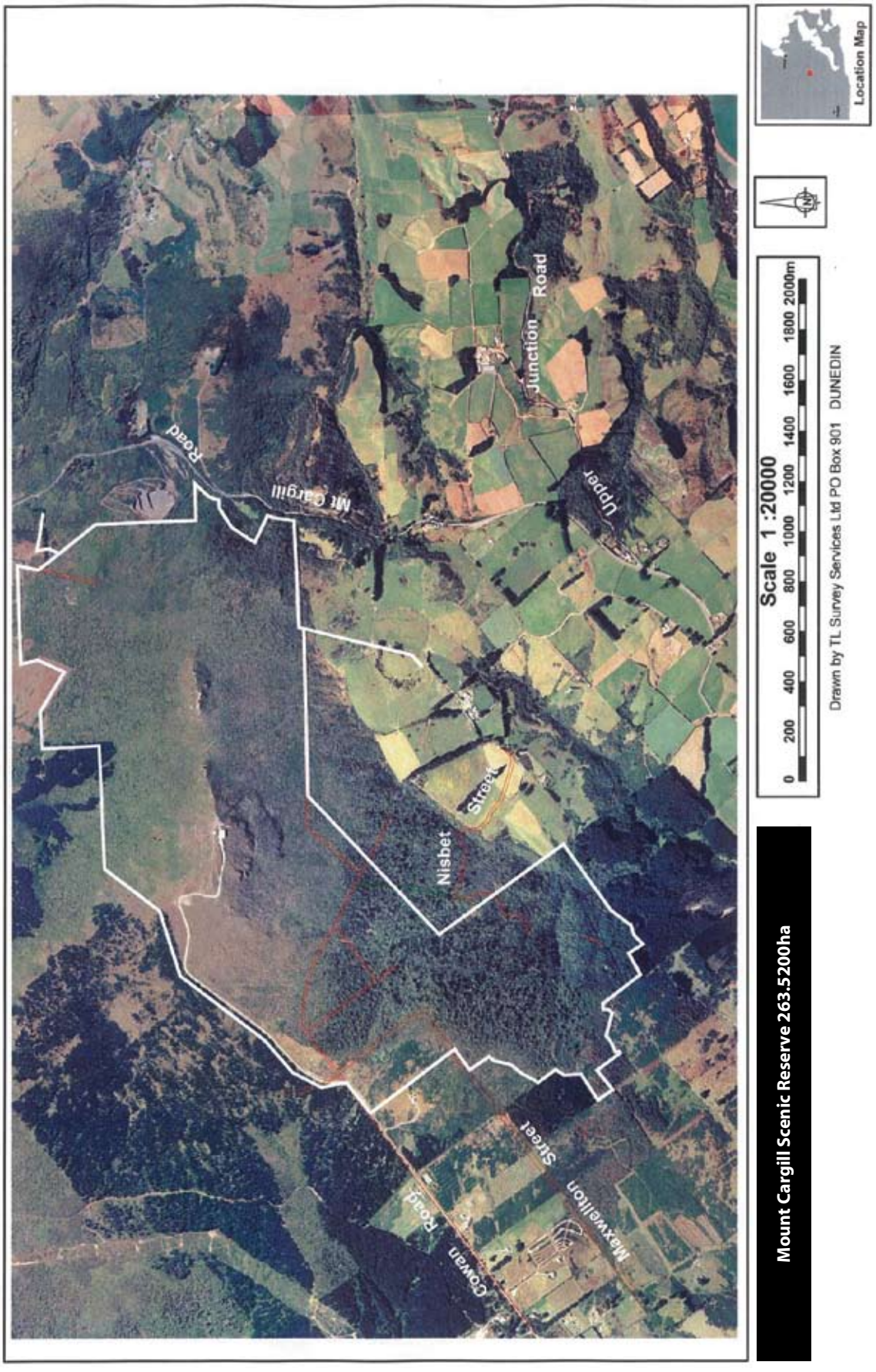


Figure 8.2 Mount Cargill Scenic Reserve: Aerial Photograph of Land Units



5.9 Mount Pleasant Scenic Reserve

Introduction

Mount Pleasant Scenic Reserve (16 ha) is located approximately 11 km to the north-east of the city centre on the south-eastern slope of Mount Cutten. The reserve is part of an isolated stand of reasonably intact montane forest.

Access

Unformed legal road access exists from both Mt Cargill Rd, and Reservoir Rd, Sawyers Bay. Physical access is somewhat difficult.

Landscape

Although the reserve is not visible from the urban centre of Dunedin, it contributes to an important vegetation corridor along the ridgeline visible from the Peninsula. The reserve combines with Mt Cargill, the Organ Pipes, and Grahams Bush (Department of Conservation) to form a continuous band of native vegetation along the northern slope of the Otago Harbour but this reserve does not stretch up to include the ridgeline. While physical access is not presently available to the site, the reserve is important in contributing and maintaining the character and amenity of the ridgeline above the harbour. The reserve is entirely covered with native forest with a number of mature trees breaking through the main canopy. This gives the reserve integrity and character that should be maintained and protected. Due to the lack of any structures in the local area, the landform dominates the character of the site. However, a stand of exotic pines exists on the top of the ridgeline above the reserve, reducing the coherence and integrity of the area (these trees are located on private land).

Vegetation

This reserve has considerable scenic and scientific value since the forest canopy of mountain cedar, rimu, miro and Hall's totara is reasonably intact over much of the reserve. Near the lower boundary, however, most of the conifers have been cut out, while near the upper limit fire has destroyed many of the cedar trees. The forest interior is in very good condition despite minor use by stock, encroaching from the lower (eastern) boundary. Boundary fences, however, are generally in good condition.

Use

Present public use is probably negligible.

Potential Development

Development of public access from the quarry on the old northern highway is recommended, together with extension of the reserve upslope to a line connecting the summits of Mt Martin (478 m) and Mt Cutten (530 m). This would not only make a natural boundary where none exists at present, but also give an excellent vantage point from which to view Otago Harbour and Peninsula.

A track linking Grahams Bush Scenic Reserve to Mt Pleasant Scenic Reserve could be given further consideration in the future. This would involve crossing private land so appropriate negotiations with landowners would be required.

Figure 9.1 Mount Pleasant Scenic Reserve: Diagram of Land Units

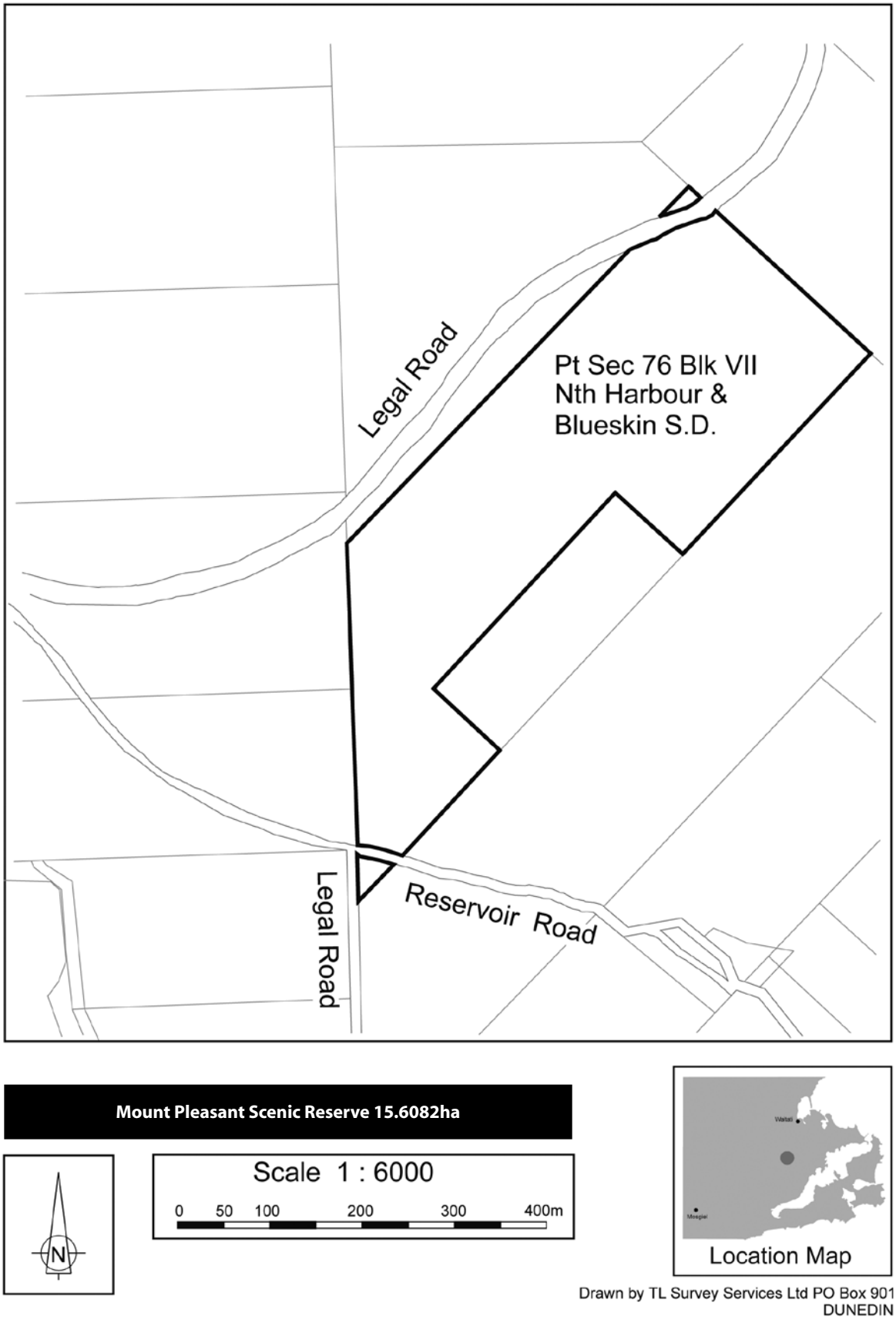
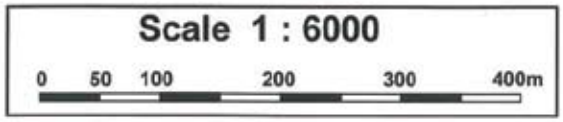


Figure 9.2 Mount Pleasant Scenic Reserve: Aerial Photograph of Land Units

Mount Pleasant Scenic Reserve 15.6082ha



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5.10 Ross Creek Reservoir Land

Introduction

The Ross Creek Reservoir Land is an area of indigenous and exotic vegetation surrounding the Ross Creek Reservoir and water treatment facilities. The area has been used for water storage and treatment of the city water supply for over 130 years. The area has been opened up to the public and a network of tracks developed. This area's high amenity and scenic values attract both tourists and locals seeking a peaceful relaxing environment or some exercise and fresh air. This area forms an entranceway to other areas of vegetation from the city, most notably Swampy Summit, Flagstaff Scenic Reserve and Silverpeaks Scenic Reserve.

The Ross Creek Reservoir Land is a tributary of the Leith Valley. The Otago Conservation Management Strategy (Department of Conservation, 1998) describes such areas as maintaining the quality of the visual setting at Dunedin City for residents and visitors. The Ross Creek Reservoir Land is an important resource for recreation in Dunedin City as it is a popular walking and running location. Its close proximity to Dunedin's tertiary institutions means students regularly use it.

This area is fee simple land and therefore is not a reserve under the Reserves Act 1977. Ross Creek has been included because it has high recreation and scenic values and therefore similar management to the other reserves in this plan is appropriate. Such areas will be managed under this management plan as if they were reserves.

History

Development of the reservoir and piping to some of the lower lying areas of the city was started by a private Water Works Company in 1865. The reservoir was completed and officially opened in 1867. Following lengthy negotiations, the Council purchased the reservoir in 1875.

The valve tower and the earth dam are the oldest structures of this type still in use in New Zealand. In recognition of their outstanding significance, the valve tower and earth dam are classified as Category I historic places in the Historic Places Register. An early cottage site and stone ruin is also present.

Landscape

Ross Creek Reservoir area is located within the Leith Valley and forms a strong physical connection between the urban area of Dunedin and Swampy Summit water catchment area. The area is an important recreational facility within easy walking distance of the centre of the city. Ross Creek – School Creek provides the vital link, connecting the Woodhaugh Gardens, and Town Belt, with the bush and stream systems of the western areas of the City, in a series of walking tracks and green belts.

Within the area are two major water reservoirs that feed a proportion of the city as well as a number of historical water diversion races. The reserve is wedged between steep valley slopes creating an internal, enclosed atmosphere to the area and is well vegetated in a mix of native and exotic species.

The cliffs and waterways dissecting the area also present significant natural features, influencing not only ecological systems but also human activities.

Vegetation

The area is heavily modified, largely because of its close proximity to the city with few examples of mature native trees, although the area is regenerating well.

The vegetation of Ross Creek Reservoir Land can be classified in two main groups: (1) exotic plantation forest, amenity plantings or open areas associated with the water supply area; or (2) indigenous vegetation. With the exception of a few large scattered podocarps, indigenous vegetation is entirely secondary in origin.

Twelve vegetation/habitat types have been described in the Ecological Assessment report for the Ross Creek Reservoir Land, these are indicated below.

1. Kanuka (*Kunzea ericoides*) – broadleaved species forest
2. Podocarp – kanuka (*Kunzea ericoides*)/ tarata, lemonwood (*Pittosporum eugenioides*) – mahoe; whiteywood (*Melicytus ramiflorus*) – kotukutuku, tree fuschsia (*Fuchsia excorticata*) forest
3. Sycamore (*Acer pseudoplatanus*) – Kotukutuku, tree fuschsia (*Fuchsia excorticata*) – kanuka (*Kunzea ericoides*) forest
4. Pine plantation
5. Adventive amenity plantings / broadleaved shrubland
6. Pond, mown grass and buildings
7. Agrostis capillaries – sweet vernal (*Anthoxanthum odoratum*) grassland
8. Adventive amenity plantings / Kotukutuku, tree fuschsia (*Fuchsia excorticata*) forest
9. Macrocarpa plantation
10. Grazed pasture
11. Broadleaved species scrub and shrubland
12. Mixed adventive-indigenous shrubland

Ileostylus micranthus (green or common mistletoe) is a significant host of native insects especially beetles

and moths. Eastern Otago, and particularly Dunedin Harbour have some of the largest surviving populations of this plant species which is threatened over much of its range. This area of land has a significant number of plants on a variety of small host trees and shrubs. *Ileostylus micranthus* is classed as 'declining' on a national basis by de Lange et al. 1999.

Management Issues

There are several management issues that may affect conservation issues in the Ross Creek Reservoir Land. These are:

1. Development and repair of water supply features may change existing vegetation.
2. The development of informal tracks by members of the public may cause small-scale damage to ground fauna.
3. Extensions and repair to transmission lines may damage existing vegetation.

Pest Plants and Animals

Weeds and mammalian pest species have the potential to become a significant problem in the Ross Creek Reservoir Land. Sycamore (*Acer pseudoplatanus*) and Darwin's barberry in particular need to be addressed, as they are invading areas of indigenous vegetation. Other species should also be monitored. Mammalian pests should be monitored and control implemented if necessary. Fences should be checked regularly, and repaired as necessary, to keep out trespassing stock.

Pest plants

The weed species present in the Ross Creek Reservoir Land can be placed into three categories based on the level of threat each poses to the vegetation communities in the reserve.

(i) Invasive ecological weed species that pose a threat to intact indigenous forest. Sycamore (*Acer pseudoplatanus*) seedlings are present in the forest understorey in various parts of the reserve, growing beneath an intact canopy, eventually displacing indigenous species.

(ii) Weeds that may be invasive in other climates or vegetation types, but which, in the absence of large-scale disturbance, are unlikely to invade indigenous forest in this area.

(iii) Adventive species with a limited ability to invade indigenous vegetation.

The close proximity of urban areas means that there is a high risk of new weed species establishing from garden escapes, organic waste dumping or unauthorised plantings.

One 'weed problem area' is the vegetation associations below the power transmission lines that criss-cross the reserve. Ongoing disturbance will be necessary to keep vegetation away from the lines; this disturbance maintains an open canopy vulnerable to weed invasion.

Mammalian pests

The relative abundance of seedlings and saplings of palatable indigenous species indicates low numbers of mammalian browsers.

Future management actions should aim to maintain this low level of browsing pressure by monitoring animal pest numbers and responding to any increase in their densities. Possums are the main browser threat in the reserve.

Fauna

Indigenous avifauna

The indigenous bird species have been recorded in Ross Creek Reservoir Land include rifleman, bellbird, New Zealand pipit, shining cuckoo, kahu, long-tailed cuckoo, grey warbler, New Zealand kingfisher, kereru, welcome swallow, brown creeper, morepork, robin, tui, fantail, and silver eye.

Many of these species probably breed within the confines of the reserve. Other species such as kahu, and water birds are vagrants from other larger forest stands in the district. Bellbird numbers seemed particularly high during the vegetation survey.

A wide variety of introduced birds are also present in the area.

Invertebrate fauna

The Ross Creek Reservoir Land contains a mixture of vegetation types, most of which are re-growth areas or small remnants. The key communities for the conservation of native invertebrates are:

- Moist forest in gullies
- kanuka (*Kunzea ericoides*) stands
- *Ileostylus micranthus*

Moist Forest in Gullies

Dunedin's endemic peripatus has been found widely within this area. Another inhabitant of these damp gully forests is the large carabid beetle *Mecodema sculpturatum* and several smaller carabids. A small land snail *Alsolemia cresswelli* which is endemic to Dunedin City and Dunedin's largest spider, the orange *Porrhothele antipodiana* live in the moist forest floor of this forest.

Kanuka (Kunzea ericoides) stand

Kunzea ericoides (kanuka) in Ross Creek is host to a particularly rich bug fauna with cixiid, lygaeid and mirids. Also found on the bark of *Kunzea ericoides*

and on the adjacent clay banks, is a tiny casemoth species undescribed in the genus *Reductoderces*. The species is Dunedin endemic with a large population here. Stick insects, moth larvae and beetles are also conspicuous in the area.

Ileostylus micranthus

Ileostylus micranthus (green or common mistletoe) is a significant host of native insects especially beetles and moths

Management Issues

Management issues for this reserve which are relevant to native invertebrates and their habitats are:

- The increasing levels of public recreation and the proliferation of informal tracks
- Mammalian pests that feed on foliage important to the native invertebrates directly, or pests that feed directly on the insects.

Access

As roads surround the area, there are numerous opportunities for pedestrian access. The most commonly used pedestrian access is from Cannington Rd, Burma Rd, Clarewood Ave and through the adjacent Braeview Crescent Reserve.

A pedestrian Right-of-way (Area A DP 300146) exists across Lot 8 DP 9417 between Braeview Crescent Reserve Lot 9 DP 9417 and Ross Creek Reservoir Land Part Block XI SO 439. This provides access to Ross Creek.

Use

The most popular activity is walking, whether for exercise or just to appreciate the natural surroundings. Other activities popular in the area include; jogging, orienteering, children's play, picnics, and nature study. This area is popular for exercising dogs. Dogs are permitted in the area, provided they are under control.

Permanent orienteering course markers were established in the Ross Creek area in 1996 by Orienteering Otago. A variety of community and school groups use the course.

The Ross Creek/School Creek area is rich as a resource for teaching a wide variety of subjects. Several of the local schools make use of the Ross Creek area as a teaching resource. The value in this is that these opportunities are all within a small area, close to the City centre.

A number of indirect benefits to the community must not be overlooked. Factors such as the opportunity for people to 'get away from it all' for peace of mind, to recreate and refresh body and soul, are certainly values that attract people to recreate in this natural setting so close to the city centre.

Transpower has the following existing high voltage transmission line traversing the Ross Creek Reservoir land: Halfway Bush – Oamaru A and B 110kV double circuit on towers. Plans indicating the location of these transmission lines are available from the Transpower Environmental Group, and should be sought to assist with planning development of the reserve.

Management Issues

The key management problem is the spread of sycamore (Acer pseudoplatanus) into intact indigenous vegetation. The water supply function and extremely high public usage of this reserve mean that any conservation/restoration initiatives will need to take into account the sometimes conflicting needs of these other users.

Dog owners allowing dogs to foul in this area are also a concern. Further consideration to alleviating this problem will be required.

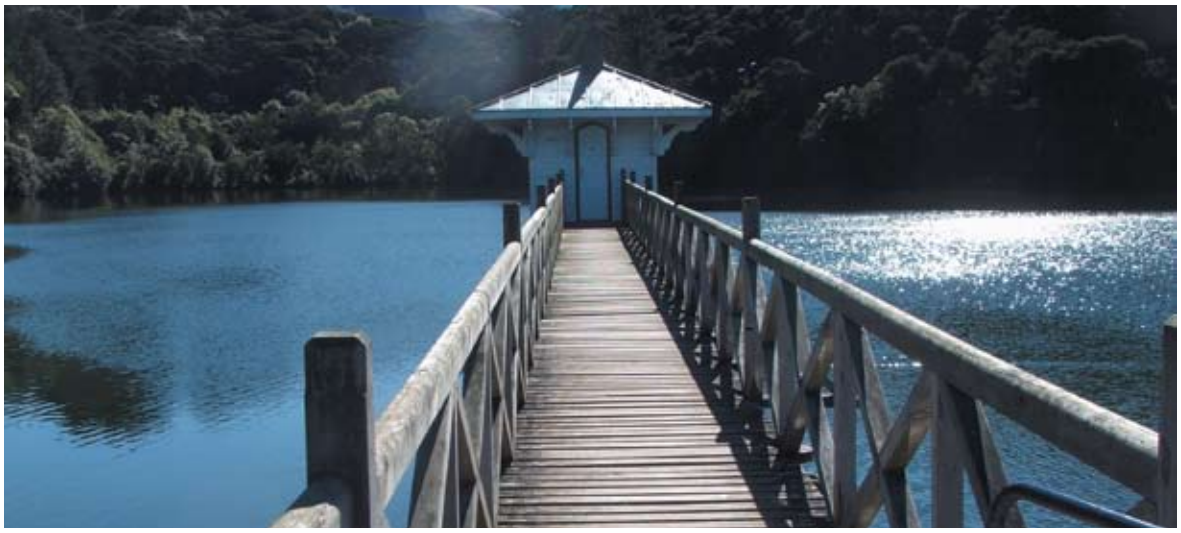
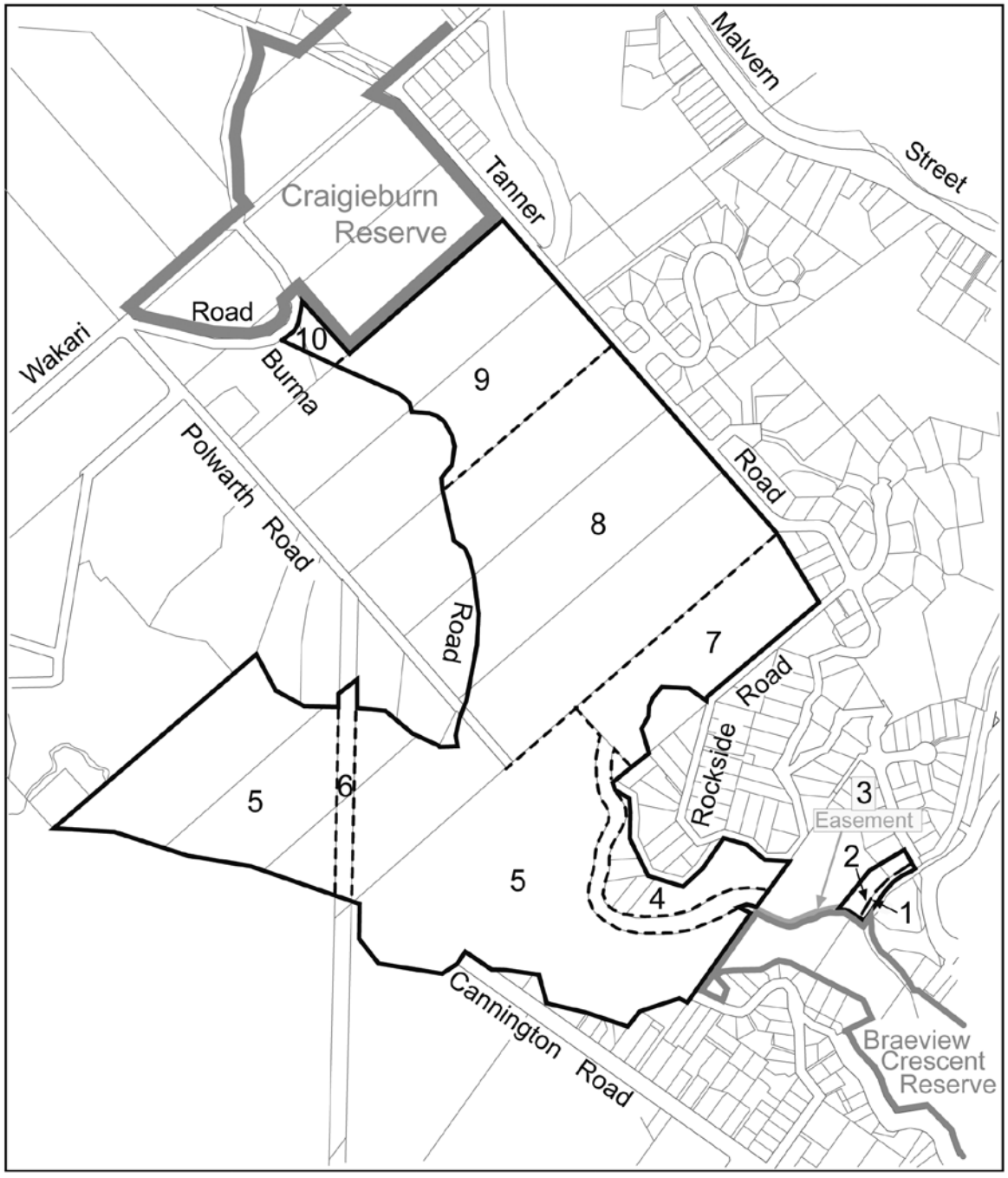
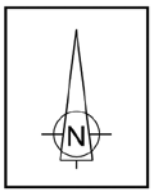


Figure 10.1 Ross Creek Reservoir Land: Diagram of Land Units



Ross Creek Reservoir Land



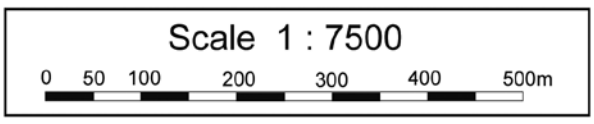


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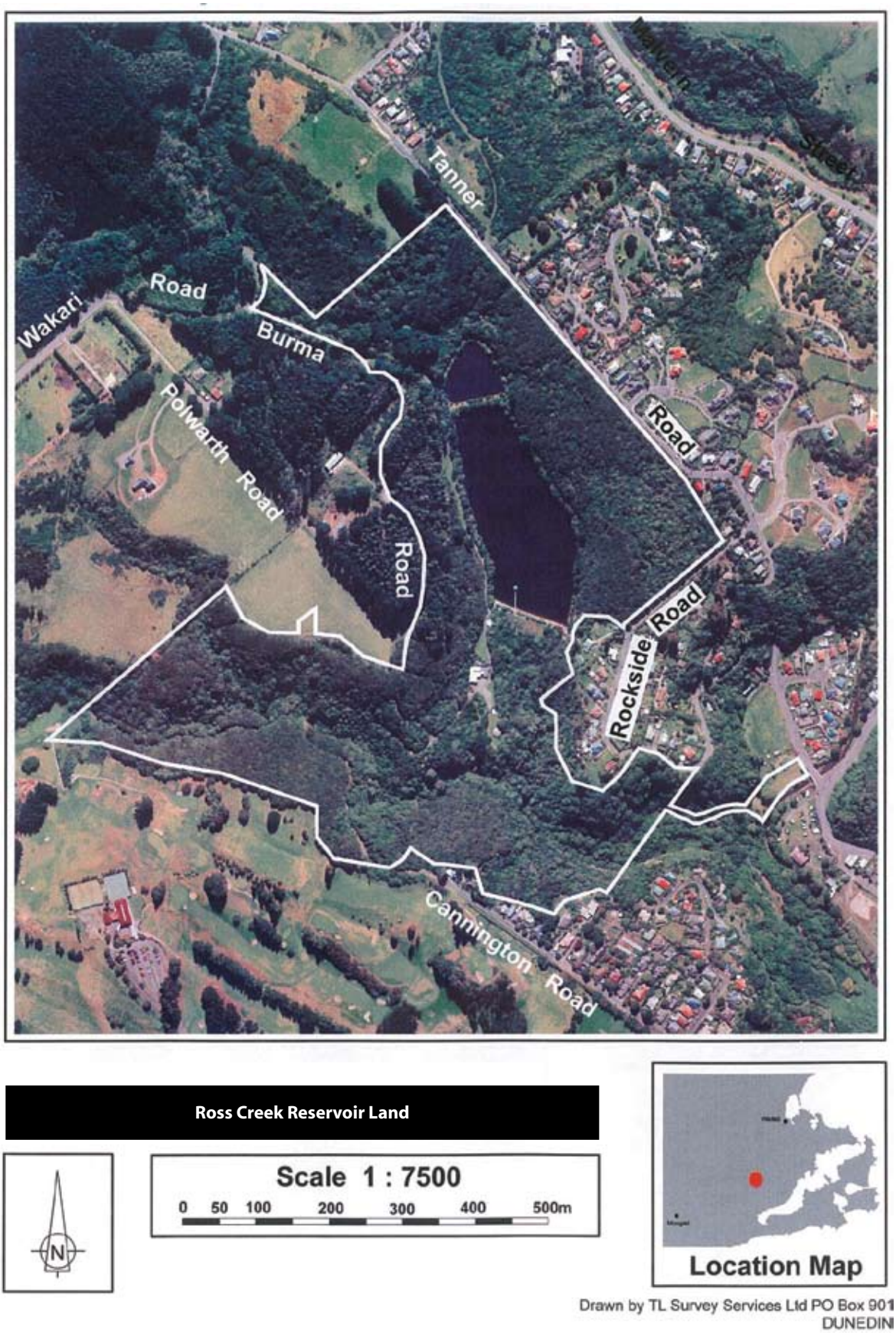
Figure 10.2 Ross Creek Reservoir Land: Aerial Photograph of Land Units



5.11 Sanda Road Recreation Reserve

Introduction

Sanda Road Recreation Reserve (6.7 ha) is located 3 km west of the city on Sanda Road (mostly unformed legal road) and adjoins Kaikorai Scenic Reserve.

Landscape

Sanda Road Reserve is located on the southern slope below Brockville, forming a physical link between Brockville Park and Kaikorai Scenic Reserve. The vegetation cover is mixed quality varying between regenerating native bush to exotic trees. The topography of the area is generally steep, falling away sharply from Brockville into a stream gully.

Overall, the visual quality of Sanda Road Reserve is not high, but collectively as part of an open green network surrounding Brockville and Kaikorai, its value is important.

Vegetation

The reserve generally has a thick cover of mixed vegetation and some areas of gorse. Two steep, grassed sections along Cockerell Street allow access into the reserve. Task Force Green workers have cleared gorse behind the house sections to create an area of public green space that also acts as a firebreak. This open space increases fire safety for adjoining properties should a fire start in the reserve, allows easy walking access, and reduces the household and garden waste being dumped in the reserve. This open space area can be flail cut 3-4 times a year to keep it tidy.

Use

An informal track runs behind the adjoining houses on Cockerell and Statham Streets. This track leads out onto Sanda Road. The reserve is likely to be used by the local community for walking, especially with dogs.

Access

Pedestrian access is possible from Glenelg and Cockerell Streets, from Sanda Road and through the Kaikorai Scenic Reserve.

Management Issue

The dumping of household rubbish and garden waste along the boundaries of the reserve is a concern. This problem has reduced since the clearing of the firebreak between the reserve vegetation and adjoining properties. Efforts will continue to further reduce this problem.

Figure 11.1 Sanda Road Recreation Reserve: Diagram of Land Units

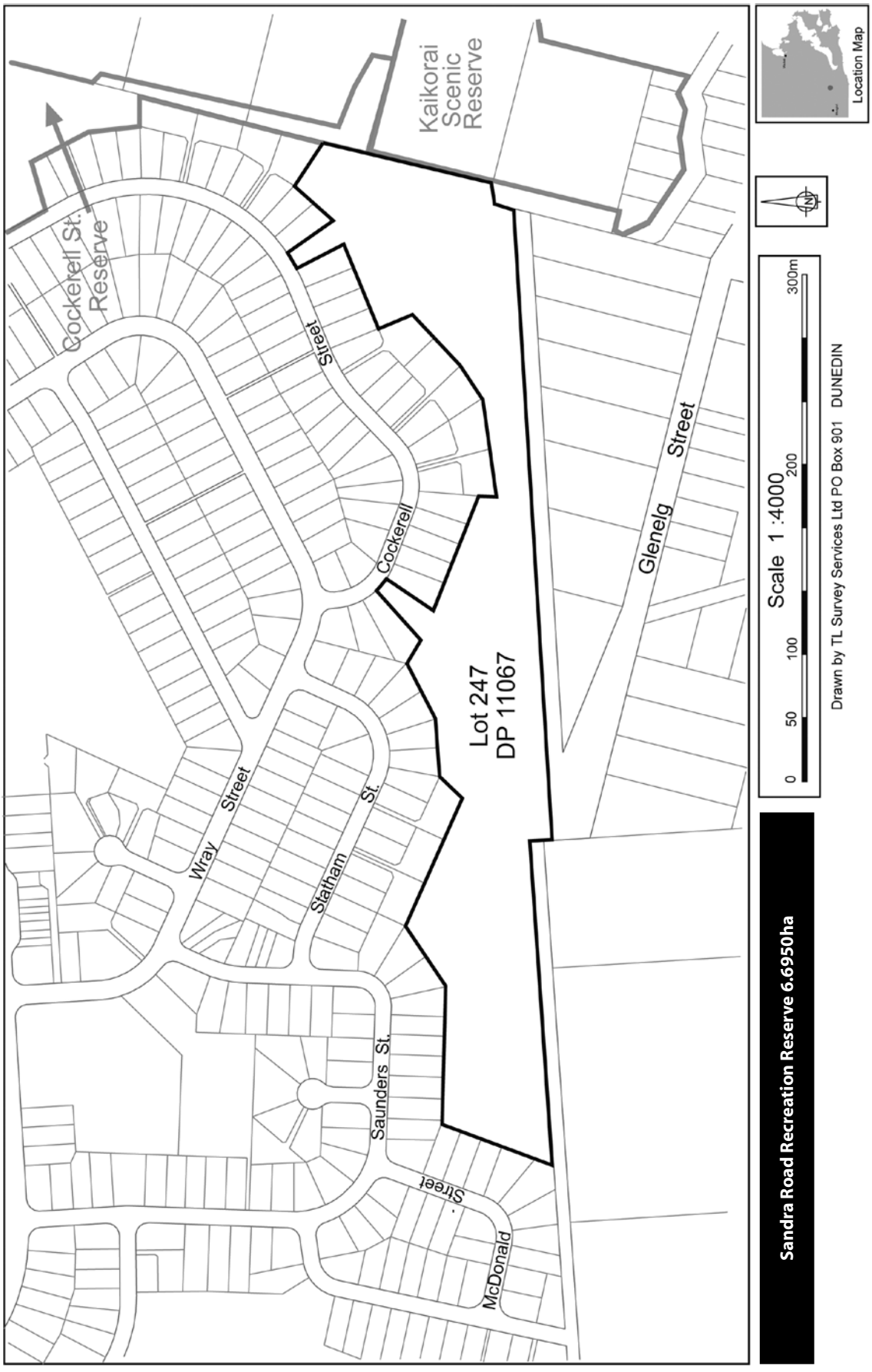


Figure 11.2 Sanda Road Recreation Reserve: Aerial Photograph of Land Units

5.12 Stevensons Bush Scenic Reserve

Introduction

Stevensons Bush Scenic Reserve (and adjoining local purpose reserve) (15 ha) is located 7-8 km north east of the city centre above St. Leonards.

History

The Stevensons Bush was gifted by Annie Stevenson to the Council in 1977 for preservation as a bush reserve. The adjoining Local Purpose (Scenic) Reserve was transferred to Council in 1989 from Mr DW Hall.

Landscape

Stevensons Bush is located on the eastern slope of Signal Hill above St Leonards. The reserve is on a steep bank, which slopes sharply down from the ridgeline to the coast and is predominantly covered in native bush. There are a number of examples of mature trees, namely rimu, near the centre of the reserve. No physical access has been developed into the site at present, but the reserve provides an important green buffer between the residential area at St Leonards and a growing number of houses on the ridgeline. The reserve is visually prominent mostly from the opposite side of the harbour, but views can be obtained from State Highway 88.

Stevensons Bush has the potential for important visual and physical links with Signal Hill Recreation Reserve and Mt Cargill Scenic Reserve, helping to maintain and enhance the character and integrity of the area.

Vegetation

Stevensons Bush is native forest with a number of large emergent trees such as rimu, and totara. Vegetation includes manuka, large pitosporums, punga and the occasional cabbage tree. Some muehlenbekia is present on the reserve fringes.

Boundary fencing work will be required to ensure stock from adjoining farm land does not stray into the reserve and adversely impact on ecological values. The goat population on the reserve causes problems and ongoing monitoring and wild animal control is occurring. Introduced animal, particularly possum, control is essential to maintain or enhance the quality of the reserve.

Use

Present public use is negligible.

Possible consideration could be given to developing a track from Tui Street in St. Leonards to Cleghorn Street. This would provide a recreation resource for the St. Leonards community and could be part of a west harbours walk linking with other reserves and existing tracks.

Access

Unformed legal road access is available from Cleghorn and Tui Streets, although these do not currently provide physical access.

Right-of-Way

A right-of-way in favour of the adjoining land exists over Pt Sec 7 and Pt Sec 8 IX North Harbour & Blueskin SD, between Pt Lot 115 Deeds 109 and Lot 2 DP 19795.

Figure 12.1 Stevensons Bush Scenic Reserve: Diagram of Land Units

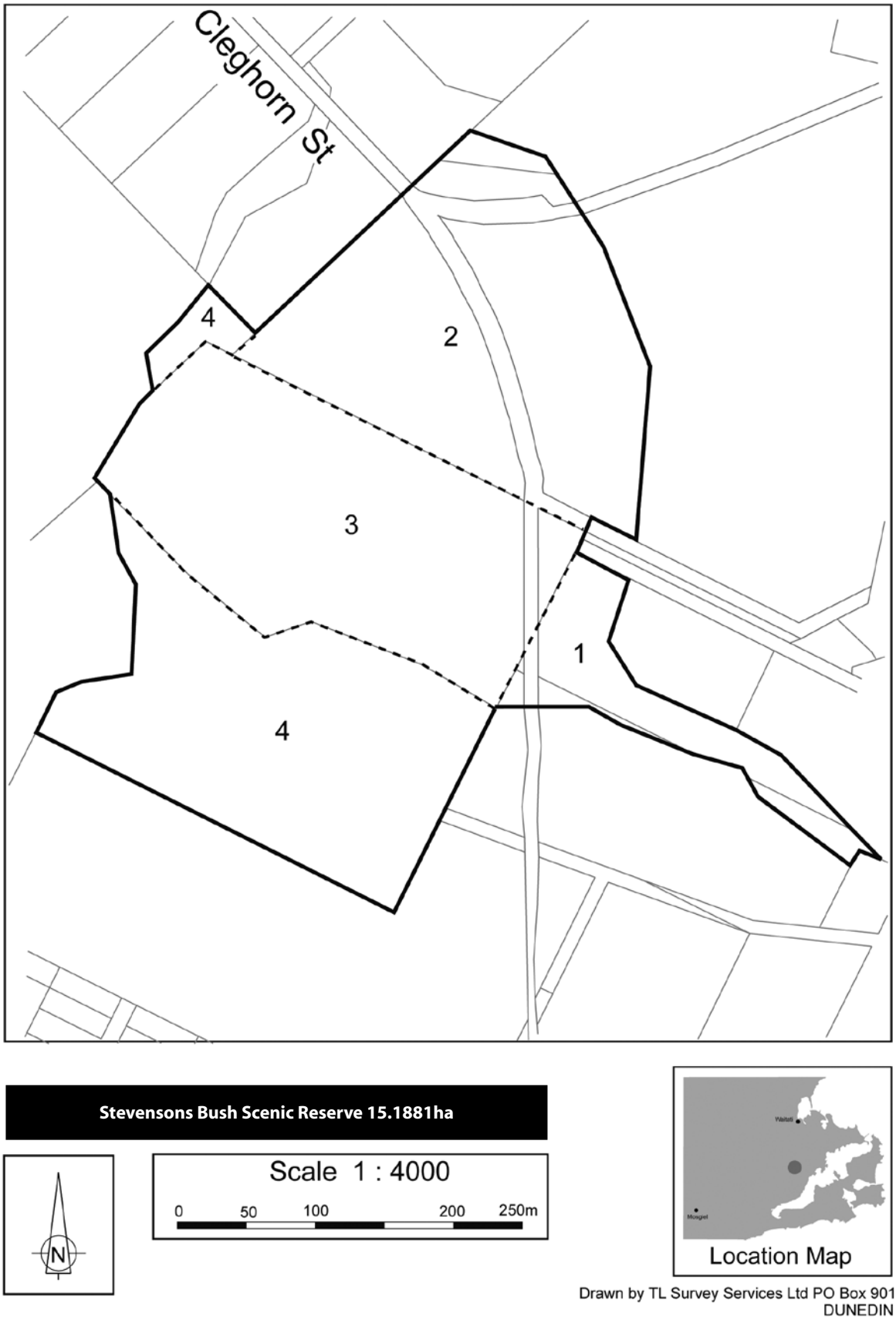
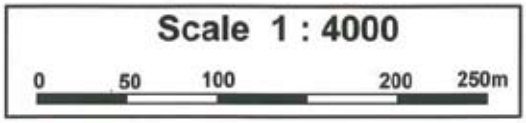


Figure 12.2 Stevensons Bush Scenic Reserve: Aerial Photograph of Land Units

Stevensons Bush Scenic Reserve



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5.13 Tilburn Street Recreation Reserve

Introduction

Tilburn Street Recreation Reserve (3 ha) is located 3 km west of the city centre. It adjoins Frasers Gully Reservation Reserve and Ashmore Street Reserve.

History

The Council purchased Lot 10 in 1991 from Mr P. Stewart. This Lot was later subdivided creating Lot 1, with Pt Lot 10 being sold.

Landscape

Tilburn Reserve is located below Mooltan Street in Halfway Bush forming an important link between Ashmore Reserve and Frasers Gully to encircle a section of Halfway Bush. The vegetation is a mix of exotic species and regenerating native bush. The reserve is more important though for its spatial qualities rather than its vegetation properties. The reserve generally exhibits the same visual qualities as Ashmore Street Reserve but with a larger amount of bush area compared to grass. The importance of the physical linkages between the reserves is noted by the informal tracks that cross the area.

Vegetation

Tilburn Street Recreation Reserve consists of an area of mixed native and exotic vegetation and public open space. The reserve contains a number of old exotics, including a very large eucalyptus tree of amazing girth. Until recently, much of the now open areas were covered with gorse and broom. Task Force Green workers have carried out extensive work to clear a firebreak between the houses and the reserve and remove weeds from the bushed gully. This open area reduces fire danger for neighbouring houses should a fire start in the reserve, provides easy access around the reserve, and has reduced the amount of household and garden rubbish being dumped in the reserve. Flail cutting will be carried out 3 or 4 times a year to keep the area tidy.

Fauna

Avifauna

Native bird populations appear to be good in the reserve, including rifleman and wood pigeon.

Use

A number of informal tracks exist on the reserve. Some are used by high school students as shortcuts to school, another provides access to the adjoining exotic plantation and through to Frasers Gully Recreation Reserve.

Transpower has the following existing high voltage transmission line traversing the Tilburn Street Recreation Reserve: Gore–Halfway Bush A 110kV single circuit on poles. Plans indicating the location of these transmission lines are available from the Transpower Environmental Group, and should be sought to assist with planning development of the reserve.

Access

Pedestrian access is through Ashmore Street Reserve or from Frasers Gully. Access is technically possible from Tilburn Street although no formal track exists.

Management Issues

The dumping of household rubbish and garden waste along the boundaries of the reserve is a concern. This problem has reduced since the clearing of the firebreak between the reserve vegetation and adjoining properties. Efforts will continue to further reduce this problem.

Access from private property and through empty private sections is occurring. This may not be a significant problem but may have adverse impacts on areas of the reserve. Further consideration may need to be given the issue of access points in the future.

Figure 13.1 Tilburn Street Recreation Reserve: Diagram of Land Units

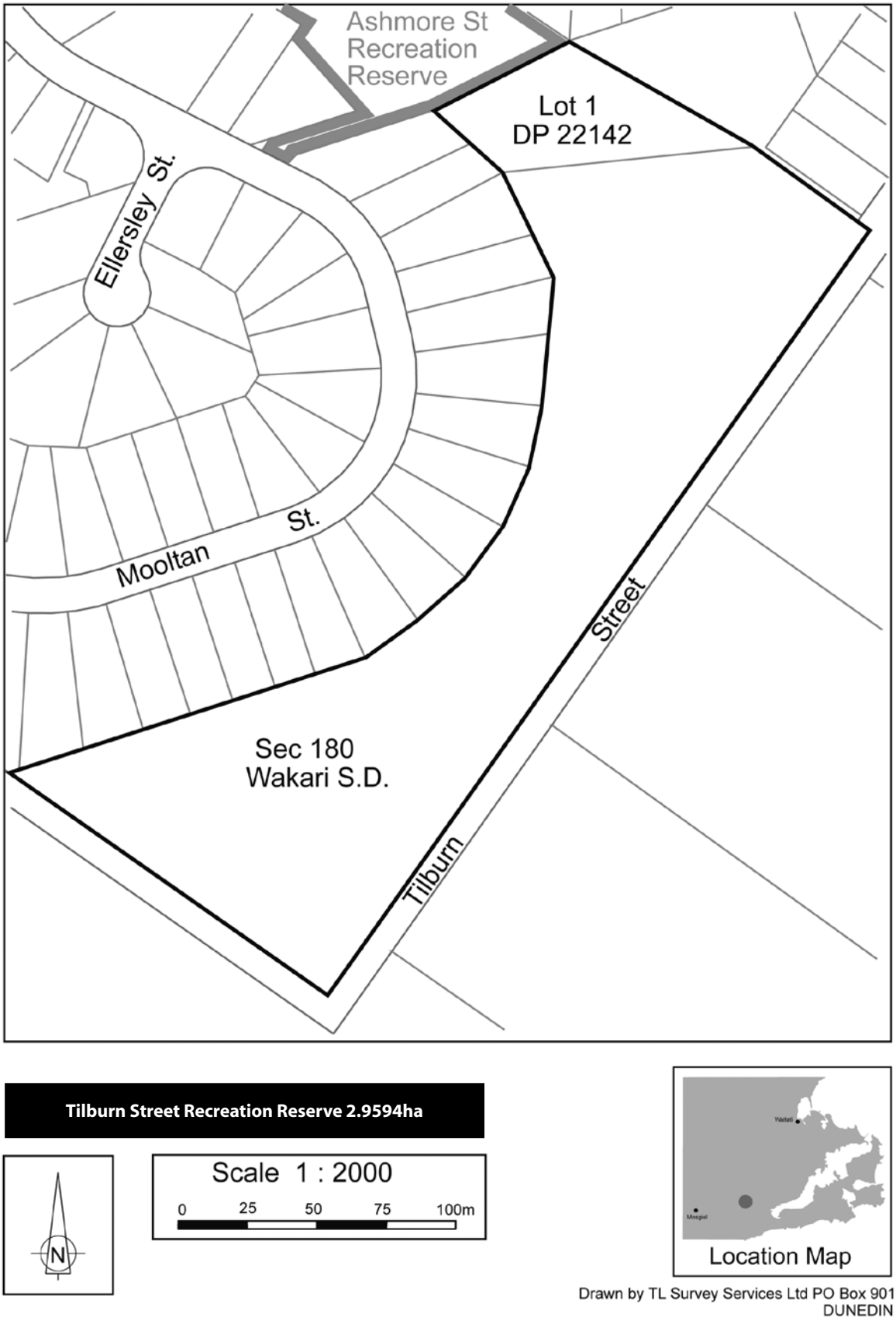
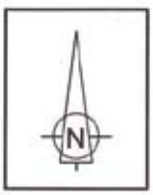
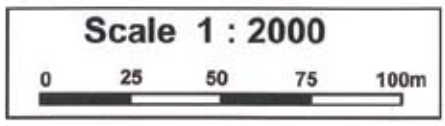


Figure 13.2 Tilburn Street Recreation Reserve: Aerial Photograph of Land Units

Tilburn Street Recreation Reserve 2.9594ha





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APPENDIX 1 – LAND SCHEDULE

HILLS RESERVES MANAGEMENT PLAN SCHEDULE						
Appellation	**Status**	**Relevant Encumbrances**	**Controlled & Managed, Vested in the DCC, Fee Simple**	**Classified**	**Officially Named**	**Computer Freehold Register**
Ashmore Street Recreation Reserve						
Section 185, Wakari SD, 1.8340 ha	Recreation Reserve All G 1978 p 314 All GN 492516		Vested All G 1978 p 314 All GN 492516	Recreation Reserve All G 2002 p 3390 All GN 5351202.1	No	All CFR 56708
Bethunes Gully Reserve						
Section 11, 1 of 13, 2 of 13, 1 of 15, 2 of 15, 59 and part Sections 12, 14 and 16, Block XI, North Harbour & Blueskin SD 37.5763 ha	Fee Simple for the purposes contemplated by Section 302(1)(a) Municipal Corporations Act 1920	Part of the land has been declared walkway All G 1987 p 1035 GN 6438443.1	Fee simple	N/A	No	All CFR 231887
Allotment B, DP 1215 6.2069 ha	Fee Simple for the purposes contemplated by Section 302(a)(a) Municipal Corporations Act 1920		Fee simple	N/A	No	All CFR OT106/193
Braeview Crescent						
Part Sections 1 and 2, Block VIII Upper Kaikorai SD (DP 396) 0.1770 ha	Fee Simple		Fee simple	N/A	N/A	All CFR OT135/132
Part Allotment 1, DP 396 0.0021 ha	Fee Simple		Fee simple	N/A	N/A	All CFR OT203/39
Lot 1, DP 10786 0.0981 ha	Fee Simple for use as a boulder trap in flood prevention works on the water of the Leith	Subject to Transfer 375 creating water and other rights	Fee simple	N/A	N/A	All CFR OT1C/864
Part Sections 2, 3, 4 and 5, Block VIII, Upper Kaikorai SD 1.4594 ha	Fee Simple		Fee simple	N/A	N/A	All CFR OT209/265
Part Sections 4, 5, 6 and 7 Block VIII, Upper Kaikorai SD. (area unknown)	Fee Simple		Fee simple	N/A	N/A	Part CFR 180686
Chingford Park Recreation Reserve						
Part Lot 29, DP 4921 (area unknown)	Fee Simple	Nil for the part contained in the Hills Management Plan	Fee simple	N/A	N/A	Pt CFR OT11D/798
Lot 1 and 2, DP 21488 9.2159 ha	Fee Simple	Appurtenant to Rights of Way created by Transfers 213358, 501149.1 and 772463.4	Fee simple	N/A	N/A	All CFR OT13B/1495

HILLS RESERVES MANAGEMENT PLAN SCHEDULE						
Appellation	**Status**	**Relevant Encumbrances**	**Controlled & Managed, Vested in the DCC, Fee Simple**	**Classified**	**Officially Named**	**Computer Freehold Register**
Lot 1 DP 364331	Fee Simple	Appurtenant to Rights of Way created by Transfers 213358, 501149.1 and 772463.4	Vested Transfer 6964378.2 (acquired by DCC as recreation reserve)	No	No	All CFR 261529
Flagstaff Scenic Reserve						
Lot 10, Deeds Plan 49	Flagstaff Scenic Reserve G 1975 p 1970 All GN 446743/2	Subject to the Skyline Walkway	Controlled and Managed G 1976 p 163	Scenic Reserve (Section 19(1)(a))	Flagstaff Scenic Reserve G 1975 p 1970 All GN 446743/2	All CFR 208044
Lots 13, 14, 15, 16 & 17, DP 296, and Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24 and 25, DP 794 98.7759 ha	Scenic G 1976 p 162 All GN 453356	(Pineapple-Flagstaff) Walk G 1982 p 3388 Part GN 586415	GN 453355	All G 1979 p 3243 All GN 526802	No	
Frasers Gully Recreation Reserve						
Section 8, 9, 10 and 11, Block X, Dunedin & East Taieri SD 10.3473 ha	Recreation Reserve part G 1985 p 1165 part GN 633218		Vested part G 1985 p 1165 part GN 633218	Recreation part G 1985 p 1165 part GN 633218	No	All CFR OT49/189
Sections 1, 2, 3, 4 and 5 Block X, Dunedin and East Taieri SD 14.7761 ha	Recreation Reserve part G 1985 p 1165 Part GN 633218		Vested part G 1985 p 1165 part GN 633218	Recreation by part G 1985 p 1165 part GN 633218	No	All CFR OT49/190
Lot 1, DP 12437 and Lots 7 and 8, DP 12619 12.5238 ha	Lot 1 DP 12437 - Recreation Reserve all G 1980 p 913 all GN 532964		Lot 1 DP 12437 Vested all G 1980 p 913 all GN 532964	Lot 1 DP 12437 -Recreation all G 1980 p 3003 all GN 545647	Frasers Gully Recreation Reserve	All CFR 42201
	Lots 7 & 8 DP 12619 Recreation Reserve all G 1981 p 3574 all GN 568842		Lots 7 & 8 DP 12619 Vested all G 1981 p 3574 all GN 568842	Lots 7 and 8 DP 12619 Recreation all G 1983 p 2093 all GN 600896	all G 1983 p 4369 all GN 608565	
Section 1, SO 11639 6.5508 ha	Recreation Reserve Bal G 1938 p 396 and G 1878 p 1214. Not registered		Vested under Section 26A(1) of the Reserves Act 1977. Transmission 6509317.1	Recreation by all G 2004 p 431 all GN 5928063.2	No	All CFR 82734
Lot 24, DP 9405 1.0142 ha	Recreation Reserve vested on deposit of DP 9405 on 10 July 1959	Subject to Easement to Drain Stormwater created by Transfer 530082	Vested on deposit of DP 9405 under Section 352(4) of the Municipal Corporation Act 1954.	Recreation by Council Resolution of 17 February 2003 Doc. 5548479.1	No	All CFR OT8A/1132A
Kaikorai Scenic Reserve						
Part Sections 121 and 122 Wakari SD and part Lot 38 and Lots 39, 40, 41, 42, 43, DP 362 4.0292 ha	Scenic Reserve all G 1912 p 2539 all Proc 2522		Controlled and Managed all G 1930 p2682. all GN 5232128.1	Scenic Reserve (Section 19(1)(a)) all G 1988 p 390 all GN 696800/2	No	All CFR 82135

HILLS RESERVES MANAGEMENT PLAN SCHEDULE						
Appellation	**Status**	**Relevant Encumbrances**	**Controlled & Managed, Vested in the DCC, Fee Simple**	**Classified**	**Officially Named**	**Computer Freehold Register**
Mount Cargill Scenic Reserve						
Lots 3, 4 and 5, DP 19089 9.77 ha	Lot 3 Reserve for the purposes of the Reserves Act 1977 by T 648614/2		Vested G 1986 p 5313 GN 671279/3 & 5939802.1	Scenic 19(1)(a) by G 1986 p 5313. GN 671279/3 & 5939802.1	Mount Cargill Scenic Reserve G 1986 p 5313 GN 671279/3 and 5939802.1	
	Lot 4 Reserve for the purposes of the Reserves Act 1977 by T 648613/2	T 587835.2. Appurtenant to that part of Lot 4 being previously Pt Sec 29, is a right of way over pt Section 30, Blk XI, North Harbour and Blueskin SD	Vested G 1986 p 5313 GN 671279/2 & 5905540.2	Scenic 19(1)(a) by G 1986 p 5313. GN 671279/2 & 5905540.2	Mount Cargill Scenic Reserve G 1986 p 5313 GN 671279/3 and 5939802.1	All CFR 190668
	Lot 5 Reserve for the purposes of the Reserves Act 1977 by T 651772/5.		Vested G 1986 p 4859. GN 669341/2 & 5905540.1	Scenic 19(1)(a) by G 1986 p 4859. GN 669341/2 & 5905540.1	Mount Cargill Scenic Reserve G 1986 p 4859 GN 669341/2 and 5905540.1	
Sections 1, 2, 3, 4, 5 and 6 SO 22490 193.1900 ha	Part became Scenic Reserve by G 1974 p 1922 GN 430718	Subject to a ROW in gross created by T 385625	Vested G 1974 p 1922 GN 430718	Scenic 19(1)(a) by G 2005 p 2723 GN 6532273.1	Mount Cargill Scenic Reserve G 1974 p 1922 GN 430718	All CFR 211087
	Balance became Scenic Reserve 19 (1)(a) by G 1984 p 654 GN 612253		Vested G 1984 p 654 GN 612253		Yes Mount Cargill Scenic Reserve G 1984 p 654 GN 612253	
Sections 79 and 80, Block XI, North Harbour & Blueskin SD 60.5600 ha	Scenic Reserve G 2005 p 2058 GN 6464320.1		Vested G 2005 p 2058 GN 6464320.1	Scenic 19(1)(a) G 2005 p 2058 GN 6464320.1	No	All CFR 231888
Mount Pleasant Scenic Reserve						
Part Section 76, Block VII, North Harbour and Blueskin SD 15.6082 ha	Scenic Reserve all G 1908 p 550 all GN 5636933.1		Controlled and Managed all G 1961 p 707. all GN 5636933.2	Scenic Reserve (Section 19(1)(a)) all G 2004 p 431 all GN 5928063.1	No	All CFR OT143/162
Ross Creek Reservoir						
Lot 11, DP 9417 0.0733 ha	Fee Simple		Fee simple	N/A	N/A	All CFR OT415/98

HILLS RESERVES MANAGEMENT PLAN SCHEDULE						
Appellation	**Status**	**Relevant Encumbrances**	**Controlled & Managed, Vested in the DCC, Fee Simple**	**Classified**	**Officially Named**	**Computer Freehold Register**
Lot 9 and 10, DP 9417 0.2140 ha	Fee Simple pursuant to Section 191 of the Municipal Corporations Act 1954 for the purposes of a street	218087 Fencing Provision. Appurtenant hereto is a right to lay a line of pipes over part of Rockside Road created by Transfer 39763. Transfer 329457 creating reciprocal Rights of Way Easements	Fee simple	N/A	N/A	All CFR OT3C/157
Easement Part Lot 8, DP 9417 (area marked A as shown on DP 310474)	Pedestrian Easement in fee simple created by T 5662988.2		Easement held in fee simple	N/A	N/A	Easement over Part CFR OT18A/988
Parts Block XI Dunedin & East Taieri SD and Allotment 49, 50, 51 and 52, Deeds Plan 143 1.5176 ha	Fee Simple		Fee simple	N/A	N/A	All CFR OT260/187 Ltd
Parts Block XI Dunedin & East Taieri SD and part Sections 89, 91 and 93 Wakari SD 15.6016ha	Fee Simple		Fee simple	N/A	N/A	All CFR OT260/173 Ltd
Part Sections 91 and 93, Wakari SD, (SO 1288) (area unknown)	Public Work under Public Works Act 1981. Dunedin Waterworks Extension purposes Proc 1743 (NZ Gaz 1903 p 496)		Vested under the Public Works Act 1981 by Pt Proc 1743.	N/A	N/A	Pt Proclamation 1743
Parts Block XI Dunedin & East Taieri SD 3.5905 ha	Fee Simple		Fee simple	N/A	N/A	Bal CFR OT260/172 Ltd
Part Sections 90, 92 and 94 Wakari SD (area unknown)	Fee Simple		Fee simple	N/A	N/A	Part CFR OT301/38 Ltd
Part Sections 86 and 88 Wakari SD (area unknown)	Fee Simple		Fee simple	N/A	N/A	Part CFR OT45/295
Parts Section 84 Wakari SD excepting however such parts of the mines of coal and other minerals (if any) under the surface of part Section 84 as are not taken by Proclamation number 1743 and are excepted thereout by Section 15 of the Public Works Act 1894 (area unknown)	Part Sec 84 Fee simple		Fee simple	N/A	N/A	Part CFR OT15A/1080
	Pt Sec 84 - Public Work under the Public Works Act 1981. Dunedin Waterworks extension purposes part NZ Gazette 1903 p 496 (Proc 1743)		Vested under the Public Works Act 1981 by Pt Proc 1743.	N/A	N/A	

HILLS RESERVES MANAGEMENT PLAN SCHEDULE						
Appellation	**Status**	**Relevant Encumbrances**	**Controlled & Managed, Vested in the DCC, Fee Simple**	**Classified**	**Officially Named**	**Computer Freehold Register**
Sanda Road Recreation Reserve						
Lot 247 DP 11067 6.6950 ha	Recreation Reserve part G. 1966 p 849 part GN 301374		Vested part G 1966 p 849 part GN 301374			
Stevensons Bush Scenic Reserve						
Lots 1 and 2 DP 3208 1.1850 ha	Scenic Reserve by T 543260. (Acquired as a reserve)	Conveyance 128512, Dds Bk 216/272 created the following: appurtenant hereto is a right of way over pt lot 115 DP 3208; Agreement as to water in the creek or water channel running through the within land; Agreement as to fencing the Right of Way over pt lot 115; and Fencing Agreement.	Vested Transfer 543260 (Acquired by DCC as a Scenic Reserve)			
Part Section 6 and part Section 2 of 5 Block IX North Harbour and Blueskin SD DP 3208 4.6122 ha	Scenic Reserve by T 543260. (Acquired as a reserve)	Fencing Agreement and Agreement as to water in the creek or water channel running through the land all set out in Conveyance 128512 (Dds Bk 216/272)	Vested Transfer 543260			
Section 69, Block IX North Harbour and Blueskin SD 4.7551 ha	Fee Simple by T838166/2 in July 1993		Fee Simple			
Lot 1 and 2 DP 23520 4.6358 ha	Local Purpose (Scenic) Reserve vested on Deposit of DP 23520 under Section 239(a) of the Resource Management Act 1991 in May 1995.		Vested on deposit of DP 23520 in May 1995			
Tilburn Street Recreation Reserve						
Lot 1 Deposited Plan 22142 and Section 180 Wakari SD 2.9594 ha	Lot 1 DP 22142 - Recreation Reserve vested on deposit of DP 22142 on 10 December 1991	Appurtenant to Lot 1 is a right of way created by Transfer 774443	Lot 1 DP 22142 Vested on deposit of DP 22142;			
	Section 180 Wakari SD - Recreation Reserve G 1967 p 1787 All GN 320169		Section 180 Wakari SD - Vested G 1967 p 1787 All GN 320169			

APPENDIX 2 – LEASES/LICENCES ON THE RESERVES

Reserve	Frasers Gully	Mount Cargill
Occupier	McPherson, S.D.	Broadcast Communications Limited
Group Type	Private	Commercial
Type of occupation	Undeveloped land	Transmitters
Building Ownership	N/A	Lessee
Purpose	Grazing	Network Utility
Type	License	Lease
Term (Yrs)	5	
Expiry Date	30-Sep-2007	
Completion Status	Completed	Completed in 2006
Leased Area (ha)	1.5700	0.9100
Legal Description Leased Area	Pt Sec 5 Blk X Dunedin and East Taieri SD	Sec 1 SO 22490 Blk VIII North Harbor and Blueskin SD

APPENDIX 3 – COUNCIL EXTRACT APPROVING PLAN

MINUTES OF A MEETING OF THE COMMUNITY DEVELOPMENT COMMITTEE HELD IN THE EDINBURGH ROOM, MUNICIPAL CHAMBERS ON TUESDAY 29 AUGUST 2006 COMMENCING AT 2.05PM

15 HILL RESERVES MANAGEMENT PLAN – FINAL APPROVAL

A report from the Reserves Planner (Jacinda Baker) presented the recommendations of the Hearing Panel on public submissions on the Draft Hill Reserves Management Plan and appended the final document with the recommended amendments incorporated. The report sought the Committee's final approval of the Plan.

The Committee offered its congratulations to Mrs Baker on the production of the Plan.

It was moved (Guest/Vandervis):

"*1. That the Council approve the amendments to the draft Hill Reserves Management Plan recommended by the Hearing Panel as a result of public submissions; and*

2. That the Council adopt the Hill Reserves Management Plan, incorporating amendments made as a result of public submissions and the Hearing Panel recommendations, subject to Minister of Conservation approval of sections relating to scenic reserves, as required by Section 41(6e) of the Reserves Act 1977; and

3. That the Council revoke the Mt Cargill management Plan (R110/8) and the Flagstaff Scenic Reserve Management Plan (R110/13) as these are replaced by the Hill Reserves Management."

Motion carried with Cr Stevenson abstaining due to the exclusion of Dalmore Reserve.

MINUTES OF A MEETING OF THE DUNEDIN CITY COUNCIL HELD IN THE COUNCIL CHAMBER, MUNICIPAL CHAMBERS ON MONDAY, 25 SEPTEMBER 2006 COMMENCING AT 2.00PM

6 COMMUNITY DEVELOPMENT COMMITTEE – 29 AUGUST 2006

It was moved (Stevenson/Noone):

"*2. That the following Part B item of the minutes of the Community Development Committee meeting held on 29 August 2006 be approved:*

Item 15: Hill Reserves Management Plan - Final Approval."

Motion carried.

APPENDIX 4 –CONSENT FROM MINISTER OF CONSERVATION

Department of Conservation
Te Papa Atawhai

23 November 2006

Dunedin City Council
P O Box 5045
DUNEDIN 9031

Attention: Jacinda Baker, Reserves Planner

Re: Hill Reserves Management Plan – Minister's Consent Under Section 41 of the Reserves Act 1977

Thank you for your letter to Bruce Hill dated 12 October 2006, the enclosed Hills Reserves Management Plan (the Plan) and attached material.

I have delegated authority from the Minister of Conservation to consent to the Plan as far as it relates to scenic reserves. I note that the Minister's consent is not required for the recreation reserves and other land covered by the Plan.

I note that the scenic reserves covered by the Plan are:

- Flagstaff Scenic Reserve
- Kaikorai Scenic Reserve
- Mount Cargill Scenic Reserve
- Mount Pleasant Scenic Reserve
- Stevensons Bush Scenic Reserve

I have considered the Plan and the process undertaken by the Council in the preparation of this Plan.

I am satisfied that it is appropriate for me, on behalf of the Minister, to consent to the Plan as far as it relates to scenic reserves.

Yours sincerely,

Marian van der Goes
Community Relations Manager

Otago Conservancy
P.O. Box 5244, 77 Stuart Street, Dunedin, New Zealand
Telephone 03-477 0677, Fax 03-477 8626, www.doc.govt.nz

APPENDIX 5 – VASCULAR PLANTS REFERRED TO IN THIS DOCUMENT

Species	Common or Maori name
Acaena anserinifolia	piripiri; bidibid
Acer pseudoplatanus	sycamore
Achillea millefolium	Common yarrow
Aciphylla aurea	golden speargrass
Aciphylla glaucescens	
Aciphylla scott-thomsonii	
Agrostis capillaris	browntop
Agrostis stolonifera	creeping bent
Anagallis arvensis	scarlet pimpernel
Anaphalioides bellidioides	
Anisotome aromatica	
Anthoxanthum odoratum	sweet vernal
Aporostylis bifolia	
Aristotelia serrata	makomako, wineberry
Asplenium bulbiferum	hen and chickens fern
Asplenium flaccidum	Makawe o Raukatauri, hanging spleenwort
Asplenium hookerianum	
Asplenium terrestre	
Astelia fragrans	
Astelia sp. (unnamed; aff. A nervosa)	mauri
Bellis perennis	daisy
Berberis darwinii	Darwin's barberry
Blechnum chambersii	nini
Blechnum discolor	piupiu, crown fern
Blechnum fluviatile agg.	kiwakiwa
Blechnum montanum	
Blechnum novae-zelandiae	swamp kiokio
Blechnum novae-zelandiae	kiokio
Blechnum patersonii	
Blechnum penna-marina	
Blechnum procerum	
Borago officinalis	borage
Brachyglottis bellidioides	
Buddleja davidii	
Bulbinella augustifolia	Maori onion
Caladenia lyallii	
Calystegia silvatica	Great bindweed
Cardamine hirsute	bitter cress
Carex coriacea	cutty grass, rautahi
Carex dissita	

Species	Common or Maori name
Carex geminata	
Carpodetus serratus	putaputaweta, marble leaf
Cedronella canariensis	balm of Gilead
Cedrus sp.	cedar
Celmisia gracilenta	pekapeka
Cerastium fontanum	mouse-ear chickweed
Cerastium glomeratum	annual mouse-ear chickweed
Chamaecytisus palmensis	tree lucerne
Chiloglottis cornuta	
Chionochloa conspicua	
Chionochloa rigida	narrow-leaved snow tussock
Chionochloa rigida × C. rubra	
Chionochloa rubra ssp. cuprea	copper (red) tussock
Cirsium vulgare	Scotch thistle
Clematis foetida	akakaiku
Clematis paniculata	puawananga
Conium maculatum	hemlock
Conyza albida	Broad-leaved or tall fleabane
Coprosma areolata	
Coprosma cheesemanii	
Copromsa ciliata	
Coprosma colensoi	
Coprosma foetidissima	Stinkwood, hupirau-ririki
Coprosma grandifolia (incl. C. australis)	kanono
Coprosma linariifolia	
Coprosma lucida	puka
Coprosma parviflora	
Coprosma propinqua	
Coprosma pseudocuneata	
Coprosma pumila	
Coprosma rhamnoides	
Coprosma rigida	
Coprosma robusta	karamu
Coprosma rotundifolia	
Coprosma rubra	
Coprosma rugosa	
Cordyline australis	ti kouka, cabbage tree
Cordyline banksii	ti ngahere, forest cabbage tree
Coriaria arborea	tree tutu
Coriaria sarmentosa	tutu
Cortaderia richardii	toetoe

Species	Common or Maori name
Cotoneaster simonsii	khasia berry
Craspedia uniflora	
Crataegus monogyna	hawthorn
Crepis capillaris	Smooth hawksbeard
Crocosmia × crocosmiiflora	montbretia
Ctenopteris heterophylla	
Cupressus macrocarpa	macrocarpa
Cyathea colensoi	
Cyathea dealbata	ponga; silver fern
Cyathea smithii	katote; soft tree fern
Cyathodes empetrifolia	
Cyathodes pumila	
Cynosurus cristatus	crested dogstail
Cytisus scoparius	broom
Dacrycarpus dacrydioides	kahikatea
Dacrydium cupressinum	rimu
Dactylis glomerata	cocksfoot
Dianella nigra	turutu
Dichondra brevifolia	
Dicksonia fibrosa	wheki-ponga
Dicksonia squarrosa	wheki
Digitalis purpurea	Common foxglove
Dracophyllum longifolium	inaka
Dryopteris filix-mas	male fern
Earina mucronata	peka-a-waka
Elaeocarpus hookerianus	pokaka
Epilobium ciliatum	Tall willow herb
Epilobium pedunculare	
Epilobium rotundifolium	
Epilobium sp.	
Escallonia rubra	red escallonia
Eucalyptus sp.	eucalyptus
Euphrasia zelandica	
Fagus sylvatica	European beech
Schedonorus phoenix	tall fescue
Fraxinus excelsior	ash
Fuchsia excorticata	kotukutuku; tree fuschsia
Fumaria muralis	scrambling fumitory
Gaultheria antipoda	tawiniwini
Gaultheria crassa	
Gaultheria crassa × G. macrostigma	

Species	Common or Maori name
Gaultheria depressa	snowberry
Gaultheria macrostigma	prostrate snowberry
Gentiana grisebachii	
Geranium microphyllum	
Geranium robertianum	herb robert
Gonocarpus micranthus	
Grammitis billardierei	
Griselinia littoralis	Broadleaf, papauma
Gunnera monoica	
Halocarpus biformis	pink pine
Haloragis depressa	
Hebe odora	
Hebe salicifolia	koromiko
Helichrysum filicaule	
Hieracium lepidulum	tussock hawkweed
Hieracium pilosella	mouse-ear hawkweed
Hierochloe redolens	Karetu, hollygrass
Histiopteris incisa	mata; water fern
Holcus lanatus	Yorkshire fog
Hydrocotyle heteromeria	
Hydrocotyle moschata	
Hydrocotyle novae-zeelandiae	
Hymenophyllum demissum	irirangi
Hymenophyllum flabellatum	mauku
Hymenophyllum multifidum	mauku
Hymenophyllum rarum	mauku
Hymenophyllum sanguinolentum	piripiri
Hymenophyllum scabrum	mauku
Hypericum androsaemum	tutsan
Hypericum perforatum	St John's wort
Hypochoeris radicata	catsear
Hypolepis millefolium	
Ileostylus micranthus	Green or common mistletoe
Ilex aquifolium	English or common holly
Juncus articulatus	jointed rush
Juncus effusus	soft rush
Juncus gregiflorus	wi
Juncus novae-zelandiae	wi
Juncus squarrosus	heath rush
Juncus tenuis	slender rush
Kelleria dieffenbachii	

Species	Common or Maori name
Kunzea ericoides	kanuka
Lapsana communis	nipplewort
Larix decidua	European larch
Lastreopsis glabella	
Lavatera arborea	tree malow
Lepidosperma australe	Square edge
Leptolepia novae-zelandiae	
Leptopteris hymenophylloides	heruheru
Leptopteris superba	Prince of Wales feathers fern
Leptospermum scoparium	manuka
Leucanthemum vulgare	Ox-eye daisy
Leucopogon fasciculatus	mikimiki
Leucopogon fraseri	patotara
Leycesteria formosa	Himalayan honeysuckle
Libertia ixioides	mikoikoi
Libocedrus bidwillii	páhautea; cedar
Lolium perenne	Perennial ryegrass
Lotus corniculatus	
Lycopodium fastigiatum	club moss, matukutuku
Lycopodium scariosum	matukutuku
Lycopodium varium	club moss
Lycopodium volubile	waewaekoukou
Lyperanthus antarcticus	
Melicope simplex	poataniwha
Melicytus lanceolatus	mahoe-wao
Melicytus ramiflorus	mahoe; whiteywood
Metrosideros diffusa	White rata
Microlaena avenacea	bush rice grass
Microsorum pustulatum	hound's tongue
Microtis unifolia	maikaika
Mimulus guttatus	monkey musk
Muehlenbeckia australis	muehlenbeckia
Muehlenbeckia complexa	Scrub or small-leaved pohuehue
Mycelis muralis	wall lettuce
Myosotis caespitosa	forget-me-not
Myrsine australis	Red mapou
Myrsine divaricata	weeping mapou
Neomrytus pedunculata	rohutu
Nertera depressa	
Nertera dichondrifolia	
Nothofagus fusca	red beech, tawhairaunui (planted only)

Species	Common or Maori name
Nothofagus menziesii	silver beech, tawhai
Olearia arborescens	
Olearia ilicifolia	mountain holly, hakeke
Oreobolus pectinatus	comb sedge
Oreobolus strictus	
Ozothamnus leptophyllus	tauhinu; cottonwood
Paesia scaberula	matata
Parsonsia capsularis	Akakiore, native jasmine
Parsonsia heterophylla	akakaikiore; native jasmine
Passiflora mollissima	Banana passionfruit
Pennantia corymbosa	kaikomako
Pentachondra pumila	
Petasites fragrans	winter heliotrope
Phormium cookianum	whaririki; mountain flax
Phormium tenax	harakeke, flax
Phyllocladus alpinus	Mountain toatoa
Pimelea oreophila	
Pinus radiata	radiata pine
Pittosporum eugenioides	tarata; lemonwood
Pittosporum tenuifolium	kohuhu
Plantago lanceolata	narrow-leaved plantain
Plantago major	broad-leaved plantain
Pneumatopteris pennigera	pakauroharoha
Poa annua	annual poa
Poa colensoi	blue tussock
Podocarpus hallii	Hall's totara
Polystichum richardii	pikopiko; hard shield fern
Polystichum vestitum	puniu; prickly shield fern
Populus nigra	Black poplar
Populus nigra cv. Italica	Lombardy poplar
Prumnopitys ferruginea	miro
Prumnopitys taxifolia	matai
Prunella vulgaris	Self-heal
Pseudopanax arboreus	whauwhaupaku, five-finger
Pseudopanax colensoi	Three-finger, orihou
Pseudopanax crassifolius	horoeka, lancewood
Pseudotsuga menziesii	Douglas fir
Pseudowintera colorata	horopito; peppertree
Pteridium esculentum	Rarauhe, bracken
Pterostylis banksii	tutukiwi
Pyrrosia eleagnifolia	leather-leaf fern

Species	Common or Maori name
Ranunculus acris	giant buttercup
Ranunculus multiscapus	
Ranunculus reflexus	
Ranunculus repens	creeping buttercup
Raoulia subsericea	
Raukaua anomalus	
Raukaua edgerleyi	raukawa
Raukaua simplex	haumakaroa
Ribes sanguineum	flowering currant
Ripogonum scandens	kareao, supplejack
Rorippa nasturtium-aquaticum	watercress
Rosa rubiginosa	sweet briar
Rubus cissoides	tataramoa; bush lawyer
Rubus fruticosus agg.	blackberry
Rumex acetosella	sheep's sorrel
Rumex obtusifolius	dock
Rumohra adiantiformis	
Rytidosperma gracile	danthonia
Salix fragilis	crack willow
Sambucus nigra	elder
Schefflera digitata	pate
Scleranthus biflorus	
Senecio bipinnatisectus	Australian fireweed
Senecio biserratus	fireweed
Senecio jacobaea	ragwort
Senecio minimus	fireweed
Solanum dulcamara	bittersweet
Solanum laciniatum	poroporo
Sonchus asper	sow thistle
Sophora microphylla	kowhai
Sophora tetraptera	North Island kowhai
Sorbus aucuparia	rowan
Stachus sylvatica	Hedge woundwort
Stellaria parviflora	kohukohu
Stellaria media	chickweed
Taraxacum officinale	dandelion
Thelymitra venosa	
Thelymitra hatchii	
Thelymitra longifolia	maikuku
Tmesipteris tannensis	
Trichomanes reniforme	Raurenga, kidney fern

Species	Common or Maori name
Trichomanes venosum	
Trifolium pratense	red clover
Trifolium repens	white clover
Ulex europaeus	gorse
Ulmus sp.	elm
Uncinia angustifolia	Matau, hook sedge
Uncinia clavata	Matau, hook sedge
Uncinia divaricata	Matau, hook sedge
Uncinia filiformis	Matau, hook sedge
Uncinia gracilenta	Matau, hook sedge
Uncinia rubra	Matau, hook sedge
Uncinia rupestris (incl. U. angustifolia)	Matau, hook sedge
Uncinia uncinata	kamu, hook sedge
Viola cunninghamii	
Viola filicaulis	
Wahlenbergia albomarginata	
Weinmannia racemosa	kamahi

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