

# **CAVERSHAM VALLEY FOREST RESERVE MANAGEMENT PLAN**

Prepared by the Caversham Valley Forest Reserve Consultative Committee and the Community and Recreation Planning Department Dunedin City Council.

July 1996

## **PREFACE**

This management plan has been prepared by the Dunedin City Council, in association with the Caversham Valley Forest Reserve Consultative Committee, for the Caversham Valley Forest Reserve. This reserve affords protection for the moist forest habitat of a variety of invertebrates.

The Dunedin City Council, with the assistance of the Royal Forest and Bird Protection Society, purchased the reserve in 1994 for the purpose of protecting both invertebrate species and the forest habitat necessary for the survival of these species. The Dunedin City Council was also aware of the potential for this land to be used for public access, recreation and education.

The Reserves Act 1977 provides for reserves to have management plans. While the Caversham Valley Forest Reserve is not a reserve under this Act, the Dunedin City Council intends to manage it as if it was one.

The Dunedin City Council acknowledge the assistance of the Caversham Valley Forest Reserve Consultative Committee and Anthony Harris of the Otago Museum in preparing this draft management plan.

Chief Executive

27 April 1999

## 1. INTRODUCTION

A reserve management plan contains the goals, objectives and policies that guide the management of a reserve. It also contains a description of the resources present and the issues affecting these resources. The plan provides a framework, obtained through research and public consultation, that guides management decisions. Changing circumstances are accounted for by ongoing review and regular, comprehensive reconsideration at five-yearly intervals.

Although the plan provides an overall direction for management, day-to-day management is controlled via a programme of works, including a restoration plan. This covers a much shorter time span and allows for more immediate contingencies.

This management plan presents background information on the Caversham Valley Forest Reserve including a discussion on the issues affecting the reserve. Goals, Objectives and Policies for the management of the reserve are presented, as are a set of techniques for restoring the habitat values of the site. Finally, some proposals for future development are presented.

### *1.1 Purpose*

The primary purpose of the reserve is

*To protect and enhance a significant area of ecological and habitat value.*

The reserve contains forest that provides habitat for a variety of invertebrate species. It is the desire of the Dunedin City Council and other interested parties to protect and, where possible, enhance the habitat values of the site.

The Dunedin City Council also has other purposes for the land. These include public recreation considerations and public recreation values form a secondary purpose for the reserve. This secondary purpose is:

*To provide recreational opportunities where these do not compromise the primary purpose.*

## **2. RESOURCE DATA**

### ***2.1 Location and Legal Description***

The Caversham Valley Forest Reserve is situated in Caversham Valley Road, Dunedin. Private land adjoins the reserve on three sides while Caversham Valley Road abuts it on the fourth (Figure 1). The main point of vehicular and pedestrian access is off Caversham Valley Road. Pedestrian access is also possible from Blackford Street.

The Reserve is described as part Section 172, Block VI, Town District Survey District. It has an area of 3.3963 hectares and is held as fee simple land.

### ***2.2 District Plan***

The Caversham Valley Forest Reserve is within Dunedin City and is subject to the Dunedin City District Plan under the Resource Management Act 1991.

Under the Transitional District Plan, Dunedin City Section, the bulk of the reserve lies within a Recreational zone. The rest of the reserve, which is the section fronting onto Caversham Valley Road, is zoned Residential A. The Recreational zoning also applies to the adjacent forested sections.

Under the proposed District Plan the reserve is zoned Residential 1. Overlying this zoning is an urban landscape area. In addition, the Proposed District Plan identifies the reserve as an Area of Significant Conservation Value. Adjacent properties are zoned Residential 1 and have the overlying zoning of urban landscape area. The consequences of this zoning is discussed more fully in the control and management section below.

### ***2.3 Control and Management***

The reserve was purchased by the Dunedin City Council, with assistance from the Royal Forest and Bird Protection Society, in September 1994. Control and management of the reserve is the responsibility of the Dunedin City Council. To assist the Council in this role, however, a consultative group, consisting of representatives from the Department of Conservation, Royal Forest and Bird Protection Society, University of Otago, owners of neighbouring properties that may be covenanted and the Otago Conservation Board has been set up.

Figure 1 Location of Caversham Valley Forest Reserve

Circled Area: Caversham Valley Forest Reserve  
Shaded areas: Dunedin City Council-owned reserves.

### ***2.4 Access***

At present, public access that is consistent with the primary purpose of the reserve is allowed. This is limited to foot traffic along a formed but unmarked track beginning at Caversham Valley Road. This track does not provide a through route to Blackford Street at present. Vehicular access for management purposes is possible from Caversham Valley Road.

Known major users of the reserve, at this stage, have been University of Otago students on field trips and reserve neighbours.

## ***2.5 Adjacent Land Uses***

Land on the Blackford Street (i.e. north-western) boundary has recently been subdivided and is currently being developed for residential purposes. Use of this land affects the reserve in two direct ways. Firstly, stormwater from the new subdivision is discharged into a natural watercourse on the reserve and, secondly, the presence of houses has altered the hydrological patterns of the area.

Land adjacent to the east and west of the reserve (on its upper and middle slopes) is forested. Important invertebrate species have been identified in at least one adjacent property and these species may be found in other places. A high tension electricity line crosses the reserve on its upper slopes.

Houses are located along both sides of the lower slopes of the reserve. These do not directly affect the reserve, but it may affect them. For instance, the Dunedin City Council have been approached about the shading effects of trees on adjacent properties. These effects are addressed in the policies contained in this document.

## ***2.6 Physical Setting***

The reserve is located on the north-western side of Caversham Valley. It is a steep and vegetation-covered slope over most of the area (Figure 2.). An exception is a large area in the middle cleared for horticultural purposes. A natural watercourse draining the Balaclava area flows down the western side of the reserve. Three distinct terraces are identifiable at the Caversham Valley Road end of the reserve. These have been formed by human intervention at various stages.

## ***2.7 Natural and Other Values***

The reserve provides a moist forest habitat for a new genus and species of invertebrate (Onychophora) apparently endemic to Dunedin City. This forest extends beyond the reserve boundaries, as does the invertebrate habitat. The reserve contains an unusually high density of the invertebrate.

An unusually large number of other invertebrates (e.g., beetle species) of relatively undisturbed moist forested gullies of the Dunedin metropolitan area also inhabit the area. The large numbers indicates that this is a healthy and undisturbed invertebrate population, which is becoming increasingly rare throughout the country. Many flightless beetle species are present and these are part of the original fauna. Species include *Enarsus bakewelli* (Colydiidae), *Philoneis* sp., *Mimopeus opaculus* (Tenebrionidae), *Mecodema sculpturatum*, *Holcaspis punctigera*, and others. Other endemic litter invertebrates include giant native springtails, are present, while other invertebrates such as mites, centipedes, spiders and native landsnails may also be present.

Besides its habitat value for invertebrates the reserve is a remnant example of the original moist forest vegetation of Dunedin - that is, south facing moist podocarp/broad-leaved forest. These forest remnants are capable of substantial extension and restoration. Various native bird species, including bellbirds, brown creeper, fantails, grey warblers, New Zealand falcons, tomtits, tui and kereru (wood pigeon), have been reported as permanent or seasonal inhabitants of the area. Protection, advocacy and enhancement of the forest and its notable fauna provide both ecological values and are consistent with the promotion of Dunedin City as a wildlife capital.

The reserve is in close proximity to a large metropolitan area containing several educational facilities. It is already used for educational purposes and may be more so in future. This includes research programmes on the invertebrate and the forest habitat. Besides formal educational values, the reserve offers significant interpretative opportunities that add to the overall amenity value of the City.

Figure 2 Map of Caversham Valley
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Section A: Caversham Valley Forest Reserve

Line: Extent of Forest Cover

### 3. ISSUES

Several issues face the Dunedin City Council in their management of the Caversham Valley Forest Reserve.

A sub-division on the northern boundary has altered the hydrological patterns of the reserve. Stormwater discharge is now concentrated as a point discharge into a natural watercourse instead of the previous sheet-flow and infiltration. This, in turn, has reduced the moisture in some part of the Invertebrate habitat and increased it in others. The effects of reduced moisture are not known at present, however, it is predicted that this may have serious repercussions on invertebrate habitat. Increased flow has lead to scouring along parts of the water course. In addition to the hydrological issues, some concern has been expressed about the quality of the existing stormwater discharges and the likely effect of contaminants on the values of the reserve.

Public access to the reserve will have both positive and negative aspects. While there may be significant educational and recreational values associated with the reserves, there have also been reports of disturbance to invertebrates and their habitat. The Dunedin City Council has to ensure before unrestricted public access to the reserve is allowed that the primary purpose of the reserve is being fulfilled.

The area of invertebrate habitat and the range of the animal itself extends beyond the area covered by the reserve. While this management plan allows management of the publicly owned habitat, the value and means of protecting this wider area need to be also considered. This may result in the development of a long-term invertebrate conservation strategy.



The bulk of the site is highly modified. Much of the site has been planted in exotic species including Douglas fir and cedar. Self-sown and planted sycamore is a major plant pest species with the reserve. Toward the Caversham Valley Road boundary of the reserve, there have been some amenity plantings of mixed native and exotic species including rhododendrons. A large area in the centre of the reserve has been cleared of all woody vegetation and is currently covered in rank grass only.

While there are some positive benefits associated with these exotic species, such as soil conservation, shelter and bird nesting sites, the negative effects outweigh the positive benefits. Sycamore stands out as the biggest problem because it is capable of rapid growth and dominating native species. Some native vegetation may also effect the invertebrate and forest habitat values. In particular, *Muehlenbeckia australis* may cover low tree canopies and inhibit understorey plant and tree regeneration.

## **4. MANAGEMENT GOALS AND OBJECTIVES**

### ***4.1 Goal***

The overall goal of this plan is

*To protect and enhance the ecological and habitat value of the Caversham Valley Forest Reserve.*

### ***4.2 Guiding Principles***

The Dunedin City Council, in association with the Caversham Valley Reserve consultative group, have adopted this goal because of their acceptance of the following guiding principles:

- The protection and improvement of the natural environment is important in itself and for the people of Dunedin.

- The protection of features unique to Dunedin is important for the people of Dunedin and their economic well-being.
- Dunedin's natural environment can contribute to the educational features available within the city.

Additionally, the Dunedin City Council's Strategic Plan offers some guidance in the preparation of this management plan and the management of the reserve:

## **Goal Two - Economy**

To support and promote activities which offer the potential for employment and the economic growth of Dunedin.

### Applicable Strategic Statements

5 Council will protect the landscape, harbour and those wildlife and heritage features which contribute to the quality of life of City Residents and to the City's economy.

## **Goal Three - Community**

To create and maintain a broad range of recreational, cultural and social opportunities and to support community initiatives and linkages with other service agencies.

### Applicable Strategic Statements

1 Council will encourage passive and active recreation.

2 Council will continue to support and encourage access to library, sport, recreation, waterways, arts and cultural facilities.

4 The physical and natural environment should be managed for the benefit of present and future generations.

## **Goal Four - Environment**

To promote a quality environment and sustainable management of our resources by encouraging environmental improvement.

### Applicable Strategic Statements

1 Council recognises the importance of the countryside, ridgetop protection, Otago Harbour, coastline areas and other waterways and will work to protect and enhance their natural qualities, ensure their appropriate use and provide for appropriate public access and facilities.

2 Significant areas of ecological or unique habitat value will be identified and protected.

4 Council will encourage building and environmental design (ie street furniture, landscape detail) which will harmonise with the specific qualities of the surrounding area, particularly those areas with heritage value. Council will introduce, in selected areas, design criteria to reinforce the heritage qualities of the streetscapes and open space.

5 Council will maintain appropriate reserve areas and will supplement them through the establishment of other green linkages.

7 Council in promoting its tree planting programme will provide for more comprehensive environmental improvement and will encourage the community to participate.

### ***4.3 Objectives***

The following objectives will be used to help achieve the goal presented above:

1. *To protect a moist natural forest remnant and the native flora and fauna within it through the use of legislative and management tools;*
2. *To restore the forest habitat so as to improve and further extend invertebrate habitat;*
3. *To provide for public access and enjoyment of the forest and its organisms through the use of appropriate management and design tools;*
4. *To provide for appropriate scientific research;*
5. *To provide for interpretation of the site and its flora and fauna as a representative natural area within the Dunedin Ecological District.*

In addition to the reserve management objectives identified above, the Caversham Valley Forest Reserve consultative committee will be guided by the following objectives:

6. *To advocate generally for the protection of Caversham Valley forest through the maintenance of good working relationships with adjacent landowners, scientists and interested local organisations and by covenant or outright purchase.*

## **5. MANAGEMENT POLICIES**

### ***5.1 Management and control of the reserve.***

- Policy 1. Management of the reserve shall follow the goals, objectives and policies of this plan.
- Policy 2. The Dunedin City Council will administer the reserve.
- Policy 3. Dunedin City Council staff will ensure that the requirements of the Dunedin City Bylaws are complied with.

- Policy 4. The reserve shall be managed within the limits of the objectives, policies and rules set out in the Dunedin City District Plan.
- Policy 5. A consultative committee will continue in an advisory role with meetings to be held no less than twice a year during the term of this management plan. Additional meetings will be held on an as required basis
- Policy 6. The consultative committee will consist of at least five members and include representatives from the Dunedin City Council, Department of Conservation, Royal Forest & Bird Protection Society, University of Otago, owners of potential neighbouring covenanted areas, the Otago Conservation Board and other interested parties as identified by the core committee members.

## ***5.2 Review***

- Policy 7. This plan will be reviewed annually through the regular meetings of the Caversham Valley Forest Reserve Consultative Committee.
- Policy 8. A comprehensive review will be carried out at 5 yearly intervals.
- Policy 9. When amendments are deemed necessary, through the collection of new information or changed circumstances, the procedures set out in the Reserves Act 1977 will be followed.

### ***5.3 Conservation Management Policies***

#### **5.3.1 Stormwater.**

Policy 10. Stormwater discharges will be monitored to identify whether or not they compromise the achievement the goal and objectives contained in this plan.

#### **5.3.2 Earthworks.**

Policy 11. No earthworks will be permitted in the reserve except with the permission of the Dunedin City Council (in association with the consultative group).

Policy 12. Permission will only be given for earthworks if the Dunedin City Council is confident, based on the advice of the consultative group, that the earthworks will have no significant adverse environmental effect on either invertebrate or invertebrate habitat.

Comment: Any applications for earthworks will be assessed by the Dunedin City Council in association with the consultative group. As the area is one of significant conservation value, a resource consent will be required before earthworks is allowed. The Dunedin City Council's permission as land-owner is required before the consent can be granted.

#### **5.3.3 Fencing.**

Policy 13. Boundaries will be fenced where necessary for the exclusion of stock or proper definition of a boundary.

#### **5.3.4 Animals**

- Policy 14.           The reserve will not be grazed by domestic animals as this is incompatible with the primary purpose of the reserve.
- Policy 15.           Dogs will only be allowed if they are on leashes and stay on marked tracks as the effects of dogs on invertebrates is not known
- Policy 16.           Appropriate control of other species will be adopted where monitoring or public complaint indicates that there is a problem.
- Comment:           Information signs with respect to dogs will be erected at the ends of any tracks opened for public use of the site. When monitoring or public complaint indicates a problem with a pest species, advice will be sought from the consultative group and animal pest control experts. That advice, subject to it complying with this management plan, will be followed.

#### **5.3.5 Plants.**

- Policy 17.           Exotic and native plants that are detrimental to the purposes of the reserve will be removed through the use of appropriate methods as identified in the restoration plan.

#### **5.3.6 Advocacy and Boundary definition.**

- Policy 18.           Applications for use of the reserve for permanent access to other properties will be refused unless the applicant can clearly and credibly demonstrate that the proposed accessway will have no

impact on invertebrates, invertebrate habitat or the other values of the reserve. Approvals granting permanent accessway are to be made by the Dunedin City Council after recommendation from the Caversham Valley Forest Reserve Consultative Committee.

Policy 19. Formalisation or removal of existing encroachments will be negotiated between the Dunedin City Council and the appropriate neighbours. Any decision will be based on the effects on invertebrates, invertebrate habitat and the other values of the reserve. Approvals granting permanent accessway are to be made by the Dunedin City Council after recommendation from the Caversham Valley Forest Reserve Consultative Committee.

Policy 20. Where possible, the Dunedin City Council will advocate for the protection adjacent land with similar values to provide for more invertebrate habitat hence encouraging a more viable population.

Policy 21. Appropriate land use of neighbouring properties with similar values will be encouraged through informal contact and negotiation with the owners of these properties.

Policy 22. Subject to the support of interested property owners, the possibility of securing a single larger protected area will be investigated.

Comment: It may be unnecessary to define the reserve boundary if adjacent properties are managed consistent with the reserve. Opportunities for the extension of the reserve will be pursued through the use of negotiation, covenant or purchase.

### **5.3.7 Restoration.**



Policy 23.	Restoration of the reserve consistent with the restoration techniques identified in this management plan will be pursued.
Policy 24.	A restoration plan, based on the restoration techniques identified in this management plan, will be developed.
Implementation	Once this management plan becomes is approved by Council, the Caversham Valley Forest Reserve Consultative Committee Council will begin writing a restoration plan.

As well as the policies contained in this section and the restoration techniques contained elsewhere in this document, the following statements will guide the restoration plan:

a) The restoration plan will include provision for linking remnant and isolated native trees with established native forest to improve and extend the range of invertebrate habitat;

b) Large specimen exotic trees should not be removed until equivalent native species are well established and able to provide similar habitat.

c) Supplementary planting of local natives that are at present not in this forest should be made only from seedlings sources from the Dunedin Ecological District. The advice of the Caversham Valley Forest Reserve Consultative Committee will be sought on the appropriate site within the reserve for such plantings.

#### ***5.4 Use Management Policies***

#### **5.4.1 Fire.**

Policy 25. No fires will be allowed.

Policy 26. A fire management plan will be prepared, in association with the Rural Fire Officer of the Dunedin City Council, within 1 year of this plan being adopted.

#### **5.4.2 Parking**

Policy 27. Vehicular access to the reserve will be provided from Caversham Valley Road only.

Policy 28. Dunedin City Council reserves management staff will liaise with Transit New Zealand and the Dunedin City Council transportation planning staff regarding any issues that may affect the Caversham Valley Road end of the reserve.

#### **5.4.3 Buildings and utilities.**

Policy 29. Buildings will only be allowed when they accommodate management needs associated with restoration or education and interpretation.

Policy 30. Before giving any permissions for buildings, the Dunedin City Council will consult the Caversham Valley Forest Reserve Consultative Committee.

Policy 31. Building sites are limited to those areas that are clear at the time of this plan being approved.

Policy 32.               Where existing buildings are not required for restoration, education or interpretation purposes, then they should be removed.

Comment.             The provision of buildings is to be minimal consistent with the needs of the reserve and restricted to open sites below the protected area. The purpose of such structures is for restoration purposes only, although an adjacent covered area for public interpretation and shelter may be considered in the future.

#### **5.4.4 Research and monitoring.**

Policy 33.             The Dunedin City Council, in association with Caversham Valley Forest Reserve Consultative Committee will allow research and monitoring that is consistent with the primary and secondary purposes of the reserve.

Policy 34.             Research on the effects of stormwater discharge changes will be encouraged.

Policy 35.             Research on the effects of habitat restoration will be encouraged.

Policy 36.             All applications for research will be assessed by the Caversham Valley Forest Reserve Consultative Committee.

Policy 37.             A programme for monitoring invertebrate numbers and habitat quality will be promoted by the Dunedin City Council.

Policy 38.             The monitoring plan will be formulated in association with the Caversham Valley Forest Reserve Consultative Committee.

#### **5.4.5 Education and Interpretation.**

- Policy 39. Public education, by way of signs and appropriate interpretation, is recognised as an important means of reaching the objectives of this plan.
- Policy 40. An education and interpretation plan will be developed by the Dunedin City Council within two years of this management plan being approved.
- Policy 41. The education and interpretation plan will be formulated in association with the Caversham Valley Forest Reserve Consultative Committee and will be approved by this group.
- Policy 42. Funding for the implementation of the education and implementation plan will be dependent on funds gained from any public donations and approved Dunedin City Council sources (e.g. Annual Plan).

#### **5.4.6 Public access.**

- Policy 43. Public access that is not inconsistent with the primary purpose of the reserve will be allowed. This access will not be advertised.
- Policy 44. Only foot access along formed tracks will be allowed to the public at the commencement of this management plan.
- Policy 45. Subject to consultation with the Caversham Valley Forest Reserve Consultative Group further formed tracks will be considered.
- Policy 46. Motorcycle access to the Reserve is not allowed.

Policy 47.                Vehicle access to the Reserve is limited to management purposes only.

## **6. RESTORATION TECHNIQUES**

The restoration plan will provide an annual work plan for contractors<sup>1</sup> restoring the site. It will also form the base document that the Dunedin City Council's Contracts and Assets Management Department will use to monitor and report on the "contract".

The following techniques will be used in the restoration plan.

### **1.     Sycamore Removal**

The destruction of adult specimens of this species is important because of its heavy seeding. Sycamore trees will be successively removed from areas adjacent to native forest core. Some branches and logs will be left to provide a varied substrate for regeneration of native species and habitat for invertebrates. To help prevent regrowth, the sycamore stumps should be poisoned. Sycamore seedlings should be suppressed removed by hand. Where the monitoring programme indicates that there is regrowth of Sycamore, this regrowth will be removed.

### **2.     Other Exotic Species**

Initially other exotic species, such as the Douglas fir and cedars, should be left for soil conservation and shelter. Once all sycamores are removed, and there is sufficient restoration of habitat to replace the soil conservation and shelter values, then plants of these two species could be successively removed. Some Douglas fir could be retained as pigeon and other bird nesting sites.

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<sup>1</sup> Contractors in this case means whoever holds an agreement with the Dunedin City Council for implementing the restoration plan. This could include community, environmental or youth (e.g., Conservation Corps) groups.

### 3. Other Techniques

Minimum disturbance of cleared areas helps allow initial regeneration. This can be helped through the ring-barking rather than chain-sawing and, where there is no public danger, trees being left to collapse and rot down. Poisoning may also be used.

## 7. DEVELOPMENT OPTIONS

There are a number of opportunities for further development of the site.

The development options are:

- The development of a picnic area on the terrace above the proposed carpark. A grassed and paved area with appropriate equipment could be developed on the southern boundary of the reserve. This area is already cleared as a result of the actions of previous owners. The site offers good views over South Dunedin and lies close to the main entry point into the City for visitors from the south. Any development could occur in association with the education and interpretation and access policies.

These development options will be assessed on their merits. All work will be carried out in association with the Caversham Valley Forest Reserve Consultative Committee. Any work will need to be consistent with this management plan, the requirements of the Dunedin City District Plan and any other statutory requirements.

By including these ideas in this management plan, the Dunedin City Council makes no commitment to implementing the development options.