Pest Management Strategy for Otago 2009

Otago Regional Council

This is a true and correct copy of the Pest Management Plan for Otago, that was approved by the resolution of the Otago Regional Council on Wednesday, 21 February 2018.

This copy of the Pest Management Plan is deemed to be operative on 1 March 2018

The Common Seal of the Otago Regional Council was hereto affixed pursuant to the resolution of the Council passed on Wednesday, 21 February 2018 in the presence of:

Stephen Woodhead
Chairperson

OTAGO REGIONAL COUNCIL
Common Seal

Sarah Gardner
Chief Executive

Chronicle of Key Events

Key event	Date notified	Date decisions released	Commencement Date
Amendment 1 Wilding Conifers	22 February 2017	22 February 2017	1 March 2017
Amendment 2 Map 6.1 Central Otago Management Units	21 February 2018	21 February 2018	1 March 2018

Pest Management Strategy for Otago 2009

Otago Regional Council
1 August 2009

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For Further Information:

For detailed information about how to control pest plants and animals:

- Contact a Biosecurity Officer by calling 0800 474 082, or by contacting us at:

70 Stafford Street	Dunorling Street
Private Bag 1954	PO Box 44
Dunedin 9054	Alexandra 9340
ph 03 474 0827	ph 03 448 8063

- Request Otago Regional Council's information sheets about specific pests.
- Visit the Environmental Management section of our website – www.orc.govt.nz.
- Ask about our Business Unit's* service to undertake pest control (*Regional Services).

Many pests introduced early in New Zealand's settlement have had devastating effects on our environment and economy. Some pests such as rabbits have found ideal habitats in Otago and at various times in the region's history have caused widespread damage to rural properties and consequently a debilitating loss of income for farmers and rural communities.

New Zealand's position as an island many kilometres away from other countries has made us free from many serious pests. But our small population and dependence on exporting primary products forces many people to trade and travel in overseas countries. This raises the risk of pests entering New Zealand.

Throughout history there have been strong responses by central government, regional councils and industry groups, which were brought together with the Biosecurity Act 1993. This is the overriding Act for dealing with pests and unwanted organisms in New Zealand. It includes provision for the exclusion, eradication or effective management of risks posed by pests and diseases to the economy, environment and human health.

Under the Biosecurity Act, the Otago Regional Council (the Council) is mandated to play a significant role in regulating pest control in Otago and has a long history of managing pests in the region.

The Pest Management Strategy for Otago 2009 provides the regulatory controls for specified pests and acts as a catalyst for galvanising community interest in maintaining programmes to keep pest numbers under control.

The Council is, in most cases, reliant on the wider community to control pests and this Strategy gives impetus to a collective responsibility that all landowners and the whole community have to be vigilant and active in controlling pests.

The last Pest Management Strategy for Otago took effect in 2001. The Council has consulted with many interested people and groups to review and up-date the strategy which reflects community aspirations for the ongoing control of pests identified in the strategy.

This Strategy creates uniform standards for rabbit and hare control across Otago and targets lagarosiphon control in Lake Dunstan, while retaining provisions relating only to specific pest control rather than monitoring activities.

On behalf of Otago Regional Council, I thank all those who contributed to the development of this Strategy, and thank you for your interest and support for the Council's work in this important area.

Stephen Cairns
Chairman
Otago Regional Council

24 June 2009

The pest plant organisms this Strategy applies to are:
(listed in alphabetical order of common name)

Common Name	Scientific Name
African Feather Grass	*Pennisetum macrourum*
African Love Grass	*Eragrostis curvula*
Bomarea	*Bomarea caldasii and B. multiflora*
Boneseed	*Chrysanthemoides monilifera*
Broom	*Cytisus scoparius*
Bur Daisy	*Calotis lappulacea*
Cape Ivy	*Senecio angulatus*
Contorta Pine	*Pinus contorta*
Gorse	*Ulex spp*
Lagarosiphon	*Lagarosiphon major*
Montpellier Broom	*Teline monspessulana*
Nassella Tussock	*Stipa trichotoma*
Nodding Thistle	*Carduus nutans*
Old Man's Beard	*Clematis vitalba*
Perennial Nettle	*Urtica dioica*
Ragwort	*Senecio jacobaea*
Spartina	*Spartina spp.*
Spiny Broom	*Calicotome spinosa*
White-edged Nightshade	*Solanum marginatum*

The pest animal organisms this Strategy applies to are:
(listed in alphabetical order of common name)

Common Name	Scientific Name
Bennett's Wallaby	*Macropus rufogriseus rufogriseus*
Hare	*Lepus europaeus*
Feral Rabbit	*Oryctolagus cuniculus*
Rook	*Corvus frugilegus*

The sale, propagation, breeding, release and commercial display of these organisms is restricted in accordance with Sections 52 and 53 of the Biosecurity Act 1993.

The Management Agency responsible for implementing this Strategy is:
Otago Regional Council

The pest plant organisms this Strategy applies to are:
(listed in alphabetical order of scientific name)

Scientific Name	Common Name
Bomarea caldasii and B. multiflora	Bomarea
Calicotome spinosa	Spiny Broom
Calotis lappulacea	Bur Daisy
Carduus nutans	Nodding Thistle
Chrysanthemoides monilifera	Boneseed
Clematis vitalba	Old Man's Beard
Cytisus scoparius	Broom
Eragrostis curvula	African Love Grass
Lagarosiphon major	Lagarosiphon
Pennisetum macrourum	African Feather Grass
Pinus contorta	Contorta Pine
Senecio angulatus	Cape Ivy
Senecio jacobaea	Ragwort
Solanum marginatum	White-edged Nightshade
Spartina spp.	Spartina
Stipa trichotoma	Nassella Tussock
Teline monspessulana	Montpellier Broom
Ulex spp	Gorse
Urtica dioica	Perennial Nettle

The pest animal organisms this Strategy applies to are:
(listed in alphabetical order of scientific name)

Scientific Name	Common Name
Corvus frugilegus	Rook
Lepus europaeus	Hare
Macropus rufogriseus rufogriseus	Bennett's Wallaby
Oryctolagus cuniculus	Feral Rabbit

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1.1 Purpose of the Pest Management Strategy for Otago (2009)

The Biosecurity Act 1993 ("the Act") provides for Regional Pest Management Strategies (RPMS). The Pest Management Strategy for Otago 2009 ("the Strategy") is prepared in accordance with the Act. The purpose of the Strategy is to provide an effective and efficient framework for the management or eradication of selected plant and animal pests in the Otago region.

There are many plants and animals in the Otago region which are considered undesirable. Some require a national response, while many others are best dealt with on an individual property basis, but there are several that justify a regulatory response through this Strategy.

A "pest" is defined by the Act, as "an organism specified as a pest in a pest management strategy". For an organism to be included within an RPMS, that organism must be capable of causing a serious adverse and unintended effect on: economic wellbeing; the viability of indigenous plants, animals or ecosystems; soil resources or water quality; human health or recreational values; or Maori values. In addition, the benefits of action against that organism must outweigh the costs, and the benefits of regional intervention must exceed the benefits of an individual's intervention.

The Act does not impose a statutory obligation on Councils to undertake pest management activities. However, the Otago Regional Council (the Council) has chosen to take regulatory action for a number of pest plants and animals that have been identified as meeting the criteria described above. This Strategy is only part of the Council's response to pest management. There are other aspects to pest management which the Council is involved in, including surveillance, community assistance, public education and biodiversity projects, which are referred to within this Strategy.

This Strategy sets objectives, means of achieving and monitoring objectives, and rules that are specific to each of the plants and animals listed as pests in the Otago region. Under the Strategy, land occupiers are required to take responsibility for the control of pest plants and animals on their properties. This Strategy also empowers the Council to exercise the appropriate enforcement and funding provisions of the Act.

1.2 Development of the Strategy

The Pest Management Strategy for Otago (2001) was due for review by 1 September 2006. The Council conducted consultation with an extensive range of interest groups prior to public notification of the proposed replacement Strategy on 30 August 2006. The submissions period closed on 6 October 2006 and 37 submissions were received. Hearings were held in Dunedin and Alexandra on the 15 and 16 February 2007 respectively, by three hearing commissioners appointed by the Council to hear and make recommendations for decisions on submissions to the Council.

Following deliberations by the hearing commissioners, and the adoption of the decisions by the Council, the decisions on submissions were mailed to submitters on 14 December 2007. At the Council meeting of 24 June 2009, the Council resolved to make the Pest Management Strategy for Otago 2009 operative on 1 August 2009. From 1 August 2009, the Pest Management Strategy for Otago 2009 supersedes the provisions of the Pest Management Strategy for Otago (2001).

1.3 Duration of the Strategy

The Pest Management Strategy for Otago 2009 has effect for a period of ten years from 1 August 2009. This Strategy will be reviewed once it has been in force for five years or more, in accordance with the Biosecurity Act 1993. However, the Council may choose to initiate a review within the five year period if it considers this Strategy is failing to meet its objectives, or circumstances have changed significantly.

1.4 Area of effect of the Strategy

This Strategy has effect over the Otago Region as constituted by the Local Government Re-organisation Scheme 1989 and amended by Gazette Notice of 22 December 1999, p 4360. The Otago Region is shown in Figure 1.

For several pests, the rules apply to specified sub-regional areas; for example gorse and broom, with some areas requiring total control and other areas requiring boundary control only. These areas are discussed within the rules relating to plant pests (Chapter 4) and animal pests (Chapter 5), and the plans showing affected areas are given in Appendices 3–5.

1.5 Structure of the Strategy

This introductory chapter is followed by Chapters 2 and 3, on the statutory and planning framework on which the Strategy is formed, and responsibilities and obligations in regard to implementation of the Strategy.

Chapters 4 and 5 discuss plant and animal pests respectively, outlining each pest problem, the objectives for each pest, the means of achieving these objectives, the methods for monitoring the achievement of objectives and the rules regarding each pest.

Chapter 6 outlines the Council's position on biodiversity and Chapter 7 describes methods other than rules that will be used by the Council to assist in achieving the Strategy's objectives.

The remaining chapters (8 through 12) cover administrative matters, while Chapter 13 contains definitions of terms used within the Strategy.

Figure 1: The Otago region, showing district boundaries.

This Chapter outlines the statutory and planning framework for the management of pests and unwanted organisms in New Zealand. This Strategy is one of several means for control of organisms that may have adverse effects.

2.1 Legislative framework

2.1.1 The Biosecurity Act 1993

The Act provides for the exclusion, eradication and effective management of pests and unwanted organisms, by providing for:

- Border control.
- Preparation and review of both national and regional pest management strategies. Specific organisms are identified as "pests" and the strategies may include enforceable rules for the management of those pests.
- Chief Technical Officers[1] to declare an organism as an "unwanted organism". Such an organism is considered capable or potentially capable of causing unwanted harm to any of New Zealand's natural and physical resources, or human health. A comprehensive list can be found on the website of Biosecurity New Zealand[2] (a division of the Ministry of Agriculture and Forestry).
- Small scale management programmes of unwanted organisms. These can be undertaken by regional councils (under Section 100 of the Act), when it is considered that the organism can be eradicated or controlled effectively by small scale measures within 3 years.
- Actions to deal with biosecurity emergencies.

Sections 52 and 53 of the Act also state that owners of organisms must not allow an organism that is, or contains, a pest or unwanted organism to be:

- In a place where organisms are offered for sale or exhibited.
- Sold or offered for sale.
- Propagated, bred or multiplied, or encouraged to do so.

There is also a duty for owners of organisms to provide information on pests and unwanted organisms.

2.1.2 Other legislation

Nothing in this Strategy should be interpreted as affecting or derogating from other legislation, as listed in Section 7 (Relationships with other enactments) of the Biosecurity Act. Legislation of particular relevance to pest management in Otago includes:

The Resource Management Act 1991

Under this Act, regional and district plans require resource consents for certain activities, while permitting other activities subject to certain conditions. Pest control works carried out under this Strategy must also comply with regional and district plans, as both regional and district plans may contain rules controlling the introduction, spread and use of organisms, and the discharge of material to land, water or air.

The Conservation Act 1987

This Act was developed to promote the conservation of New Zealand's natural and historic resources, and resulted in the creation of the Department of Conservation. Some pest management results from the implementation of conservation management strategies, 10-year regional strategies, and species for which the Department of Conservation has responsibility.

The Wild Animal Control Act 1977

This Act applies to all land and is for the purpose of controlling harmful species of introduced wild animals and regulating operations of hunters, so as to achieve effective wild animal control. It is administered by the Department of Conservation, and applies to feral deer, chamois, thar, wallaby, possum, feral goat, feral pig or any mammal declared as a "wild animal" by the Governor-General.

[1] Chief Technical Officers are generally appointed by the Minister of Agriculture and Forestry or the Minister of Conservation.
[2] www.biosecurity.govt.nz

The Wildlife Act 1953

This Act is also administered by the Department of Conservation. It controls and protects certain wild animals and birds, and regulates game shooting seasons for game that are not otherwise subject to the Wild Animal Control Act, including duck, Canada geese and pheasant. It also lists wildlife that is not protected, such as cats, mustelids, hedgehogs, rats, magpies and rooks.

2.2 Strategic framework

2.2.1 The Biosecurity Strategy for New Zealand

This national strategy was produced in August 2003, and covers all aspects of biosecurity, including border control. The overall expectation is that New Zealand's biosecurity system is fully integrated, operating efficiently and transparently in an environment of continuous improvement (measure, review and refine). Expectations for pest management are:

- Clear and effective national leadership and coordination of pest management activities within central government, local government and the private sector.
- Transparent and effective performance measures to monitor and forecast the establishment of pest and weed impacts and pathways.
- That the Crown meets its obligations as a landowner.
- A routine programme of national and regional communication and coordination including ongoing assessment and review of both individual programmes and the overall system.

2.2.2 National pest management strategies

Under the Act, any person can propose a national pest management strategy. Once ratified by a Board of Inquiry (appointed by a Minister), the strategy may be approved by the Governor-General. At time of writing this Strategy, there were three national pest management strategies:

- National American Foulbrood Pest Management Strategy, which applies to bees;
- National (South Island) Varroa Pest Management Strategy, which applies to bees; and
- National Bovine Tuberculosis Pest Management Strategy, which controls possum and ferrets (tuberculosis vectors) in agricultural areas. There is significant by-catch of feral cats and other nuisance animals.

2.2.3 The National Pest Plant Accord

The National Pest Plant Accord (NPPA), which came into effect on 1 October 2001, is a voluntary agreement between the Nursery and Garden Industry Association, regional councils and government departments with biosecurity responsibilities (primarily the Ministry of Agriculture and Forestry, and the Department of Conservation). The NPPA was developed to complement both existing and future pest management initiatives, and provides a list of plants that have been classified as unwanted organisms under the Act. Plants on the list are subject to the requirements of Sections 52 and 53 of the Act. The Council is not a signatory to the NPPA.

2.2.4 Other relevant plans and policy statements

When compiling this Strategy, the Council gave regard to other planning documents relevant to pest management in Otago. Those which have also been considered when preparing the Strategy include:

The Regional Policy Statement for Otago

The Regional Policy Statement for Otago provides an overview of the resource management issues of the Otago region, and ways of achieving integrated management of its natural and physical resources. Plant and animal pests are recognised by the provisions of Chapter 5 (Land), Chapter 6 (Water) and Chapter 10 (Biota). It is a stated objective to protect both natural ecosystems and primary production from significant biological and natural threats, and policy to maintain and enhance biodiversity. Of particular importance are policies 10.5.3 and 10.5.4, which state:

Policy 10.5.3

To reduce and where practicable eliminate the adverse effects of plant and animal pests on Otago's communities and natural and physical resources through:

(a) Developing strategies to effectively manage Otago's plant and animal pests; and

(b) Educating about the responsibilities of all parties in the management of Otago's plant and animal pests; and

(c) Adopting the most practicable method of pest control while safeguarding the environment.

Policy 10.5.4

To reduce the adverse effects associated with introductions and movements of undesirable new species into and around Otago through:

(a) Promoting and educating about methods to reduce the spread of plant and animal pests; and

(b) Being able to respond quickly to any new introduction or movement; and

(c) Eradicating, where practicable, undesirable new species.

Chapter 10 of the Regional Policy Statement for Otago also contains a number of methods that the Council will implement to achieve the objectives and policies contained within Chapter 10.

The Kai Tahu ki Otago Natural Resource Management Plan (2005)

The Kai Tahu ki Otago Natural Resource Management Plan (2005) is the principal planning document for local manawhenua, Kai Tahu. It provides a framework to achieve a greater understanding of the natural resource values, concerns and issues of Kai Tahu. The following issues, objectives and polices each relate to the effects of pests and weeds on mahika kai and biodiversity, and are relevant to this Strategy:

- It is an objective to develop strategies and implementation plans for comprehensive control and/or eradication of pests and weeds. Policies include the promotion of containment and eradication of pests and weeds; to require monitoring of all pest management activities, including effects on indigenous species; and to oppose the indiscriminate use of chemicals or poisons in or near mahika kai sites.
- In the Clutha River/Mata-Au catchment the spread of lagarosiphon, hares and rabbits is an issue, therefore it is policy to encourage both environmental and educational efforts to halt the spread of these pests, and to require co-ordinated pest management controls.

There are also other issues, objectives and policies within the Kai Tahu ki Otago Natural Resource Management Plan (2005) that relate to pest species that are not included in this Strategy. Methods of addressing pests outside of this Strategy are discussed in section 2.5.

The Department of Conservation's South Island Wilding Pine Strategy (2001)

Wilding pines threaten over 210,000 hectares of land administered by the Department of Conservation (DoC) in the South Island, including over 64,000 hectares within the Otago Conservancy. The South Island Wilding Pine Strategy outlines DoC's obligations and identifies actions for effective control. The most widespread wilding species are Douglas fir, contorta pine, larch, and Corsican pine, but many other wilding species are also present.

The Queenstown Lakes District Council's Wakatipu Wilding Conifer Strategy (2004)

The Queenstown Lakes District Council (QLDC) Wakatipu Wilding Conifer Strategy is a non-statutory strategy to be implemented by QLDC and key stakeholders. It addresses concerns regarding the spread of all wilding conifers in the district, prioritises areas for control, and promotes initiatives and awareness.

2.3 Regional pest management strategies

Under the Act, any regional council group or person may propose an RPMS for any organism. The Act does not impose a statutory obligation on regional councils to undertake pest management activities. In preparing this Strategy, the Council considered a large number of potentially harmful plants and animals to determine what (if any) regional intervention would be appropriate. For an organism to be included within an RPMS, that organism must be capable of causing a serious adverse and unintended effect on: economic wellbeing; the viability of indigenous plants, animals or ecosystems; soil resources or water quality; human health or recreational values; or Maori values. In addition, the benefits of action against that organism must outweigh the costs, and the benefits of regional intervention must exceed the benefits of an individual's intervention.

The organisms declared to be "pests" under this Strategy are identified on pages (iv) and (v). There are other methods available that may be used to address those organisms not included in this Strategy, that are unwanted organisms or otherwise a threat to biodiversity, which are discussed in section 2.5.

2.4 Principles of pest management in Otago

There can be a number of objectives for pest management. Ideally, eradication of the pest is the aim, however, this is often not always achievable as a pest may already be widespread and well-established, and have significant reproduction or distribution capabilities, with few methods of effective control. If eradication is not possible, containment or boundary control may be an appropriate management option.

As a first principle, keeping new potentially harmful organisms out of New Zealand, and Otago, is the ideal situation, however, there have been a number of incidences in recent years where unwanted organisms have by-passed border control and become established, and many unwanted organisms have originally been lawful imports that have escaped from home gardens into the wild.

To achieve effective management of pests in Otago, the Council considers the following principles to be important:

- **Emphasis on cooperation and coordination while ensuring leadership**
  For management of pests to be effective, many parties need to be involved, and all processes should be considered and used in a cooperative and co-ordinated way. The Council has taken responsibility of being the management agency for this Strategy, and will manage, implement, monitor and enforce it, while ensuring liaison with land owners and occupiers, interest and community groups, other councils and government departments.
- **Priorities are required for the use of limited resources**
  Limited resources and other factors, such as rapid reproduction or spread, often mean that complete eradication of a pest is not possible, so it is important that the use of limited resources is prioritised to pests where management will result in measurable outcomes.

- **Objectives need to be realistic**
  Even if resources were unlimited, eradication may not be possible. Once a pest is well established, the chances of eradication are less likely. This is shown graphically on Figure 2. Where eradication is not possible, realistic management objectives, such as ongoing control or containment, are required.

  The earlier a new pest is detected, and management or control measures implemented, the more likely it is those measures will be successful. The Council has taken the approach that it is better to concentrate efforts on those pests that are in the "lag" or early "spread phase" of the pest invasion process.

- **Methods need to be effective**
  The methods used for pest control can have a major influence on the success of meeting the objectives. Therefore, it is important that all methods are considered for control of various species, and considering all relevant costs and benefits, the most effective one selected.

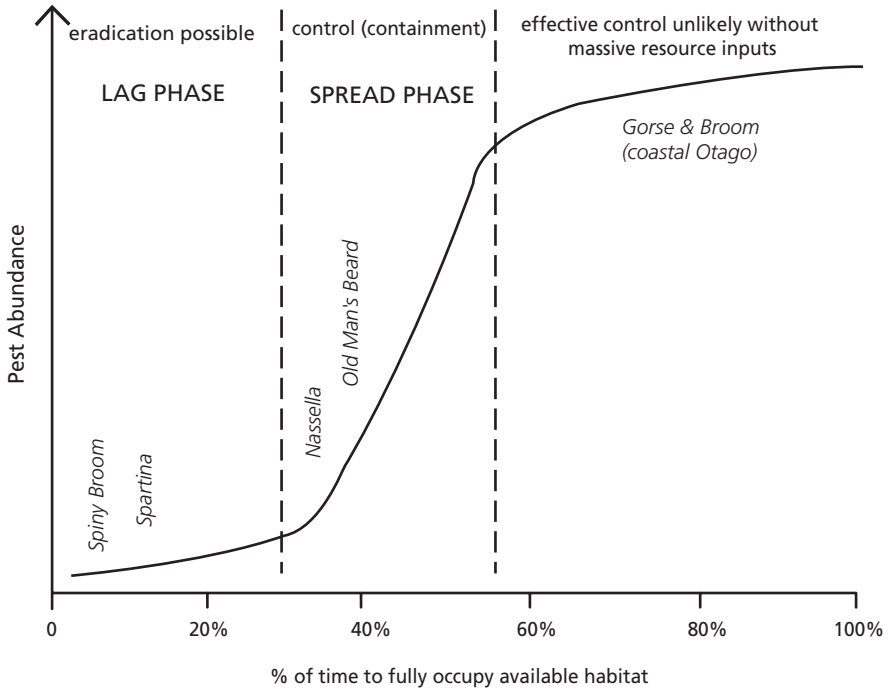
2.5 Addressing unwanted organisms or pests not included in this Strategy

The Council considers that the role of this Strategy is to identify those plant and animal pests that require enforceable powers to achieve effective and efficient pest management.

There are many plants and animals in the region which are considered undesirable, but are not included in this Strategy because they do not meet the requirements of Section 72(1) of the Act. The majority of those are best dealt with on an individual basis as land occupiers have primary responsibility for their land, while others require a national response, or the costs of requiring control outweigh the benefits, or the impact of the organism is not considered serious.

A pest does not need to be included in this Strategy for management or eradication to occur. Alternative courses of action are allowed for by the Act, as discussed in section 2.1.1, and other legislation also provides enforceable provisions, as outlined in section

Figure 2: The pest invasion process



2.1.2. Other means of pest management undertaken by the Council outlined in Chapters 6 and 7 of this Strategy include:

- Annual Plan projects may include providing education, information and advice on pests, local field days, assisting or promoting site-led projects (i.e. dealing with all pests within a specific area) and hiring out traps.
- Biodiversity funding has provided assistance for pest control on private land in addition to fencing and covenanting native habitats.
- Biological control methods have been undertaken and monitored.

2.6 Anticipated effects of this Strategy's implementation

Effects arising from this Strategy's implementation on:

- The relationship of Maori and their culture and traditions with their ancestral lands, waters, sites, waahi tapu and taonga;
- The environment; and
- Marketing overseas of New Zealand products,

are outlined below, as required under Section 76 (j) and (k) of the Act.

2.6.1 The relationship of Maori and their culture and traditions with their ancestral lands, waters, sites, waahi tapu, and taonga

The implementation of this Strategy is anticipated to have an overall positive effect on Maori culture and traditions, and will assist in meeting certain issues, objectives and policies contained in the Kai Tahu ki Otago Natural Resource Management Plan (2005). Pest management is part of the Council's overall strategy to promote and encourage biodiversity, which in turn will enhance sites of mahika kai. Strategy implementation will address the promotion, containment and eradication of selected pests, including lagarosiphon, hares and rabbits. Implementation will ensure monitoring of Strategy effectiveness is undertaken, and that it does not promote the indiscriminate use of chemicals or poisons near mahika kai sites.

2.6.2 The environment

The successful implementation of this Strategy will reduce the incidence of pest related adverse effects on the environment, and will assist with the protection of Otago's significant biodiversity values in many cases.

The use of herbicides and pesticides is not specifically promoted by this Strategy, however their use will inevitably arise. While there is some public concern over the environmental effects of herbicides and pesticides, many are biodegradable, and if used as prescribed should not result in any unintended significant adverse effects to the environment or public health. In many instances there is, at present, no practical alternative to the use of pesticides. Under the Resource Management Act 1991, discharge of contaminants may need a resource consent under both regional and district plans, and would be subject to normal consent monitoring processes.

2.6.3 The marketing overseas of New Zealand products

The control of pests will have a positive effect on production from the rural sector, and on the conservation estate and tourism. This Strategy is consistent with effective marketing of New Zealand products overseas because the Council has had regard to any impact on non-target species and any impact of chemical residues on the marketability of export products.

3.1 The proposer

This Strategy was proposed by the Otago Regional Council in recognition of its role as the lead pest management agency in terms of pests that justify a regional response.

3.2 The management agency

The Management Agency for the Pest Management Strategy for Otago is the Otago Regional Council. The Management Agency is responsible for implementing the Strategy. In determining that it shall be the Management Agency, the Council is satisfied that the Strategy meets the requirements of the Act.

3.3 Otago Regional Council roles and responsibilities

The Otago Regional Council has the following roles in respect of this Strategy:

(a) Managing and implementing the Strategy.

(b) Monitoring and enforcing the Strategy.

(c) Involving Communities:

- Education, publicity, advice and support of research (e.g. biological controls); and
- Technical advice to assist community responses to local problems.

(d) Liaising with neighbouring regional councils and pest control interest groups.

The Otago Regional Council responsibilities for pest management, both within this Strategy and outside of this Strategy, are expanded on in Chapter 7.

3.4 Land occupier responsibilities

All land occupiers are responsible for ensuring any pest plants or animals on land they occupy are controlled in accordance with the rules in this Strategy.

Although this Strategy requires pests to be controlled or eradicated, it is generally up to the land occupier to determine an appropriate method. It should be noted that additional rules under regional or district plans may also apply.

3.5 Crown land occupiers

Pursuant to Section 87 of the Act, the Crown will be asked to accept responsibility for land they administer. Key agencies include Land Information New Zealand and the Department of Conservation.

3.6 Roadside and rail corridor pest control responsibilities

Where land adjoins a road, the land does not include the road or any part of the road for the purposes of this Strategy.

The control of pests on roads under this Strategy is the responsibility of occupiers of roads. For formed roads the person responsible for the general management or control of the main carriageway is the occupier. For unformed roads, the person responsible is the person physically occupying the unformed road or, if it is unoccupied, the owner or person acting in the general management or control of that place.

In terms of rail corridors, the access arrangement will determine who the occupier is. Where the Crown is the occupier, the Council will seek agreements on pest management on that corridor.

4.1 Introduction

Ideally, complete eradication of a plant pest is the aim of control, however, this is often not achievable as a pest may already be widespread and well-established, have significant reproduction or distribution capabilities, or have few methods of effective control.

There are five forms of management required by the rules for pest plants in this Strategy being:

1. Total control everywhere in Otago;
2. Total control in identified areas;
3. Progressive control over a period of time in identified areas;
4. Containment in identified areas; and
5. Boundary control within a specified distance of a neighbouring boundary, where the neighbour's land is free of that pest, or is clear of that pest at the boundary.

Total control is the prompt eradication of a species, while progressive control allows a period of time for eradication to be achieved. Containment control allows a pest to be present within defined areas, while boundary control requires pests within a certain distance of a property boundary to be destroyed.

The rules set in this chapter impose requirements on land occupiers as follows:

- Gorse and broom:
  - total control in the gorse and broom free areas; and
  - boundary control in the rest of Otago, except urban areas.
- Nassella tussock, old man's beard, spartina, African feather grass, African love grass, boneseed, bur daisy, cape ivy, perennial nettle, spiny broom and white-edged nightshade:
  - total control everywhere.

Gravel supply sites can be closed or subject to conditions under Sections 130 and 131 of the Biosecurity Act 1993, if infested with old man's beard or nassella tussock plants or seeds.

- Lagarosiphon:
  - total control in most areas; and
  - containment and control in identified areas.
- Contorta pine:
  - total control in most areas; and
  - progressive control or containment in identified areas.
- Ragwort and nodding thistle:
  - boundary control everywhere, except urban areas.

Gorse

Broom

Montpellier Broom

4.2 Gorse *(Ulex spp)*, Broom *(Cytisus scoparius)* and Montpellier Broom *(Teline monspessulana)*

4.2.1 Description and adverse effects

The impact of gorse and broom is primarily on production values. These plants form dense thickets, which restrict grazing in affected areas. Foraging among gorse pulls fleeces and spiny twigs on gorse lower the value of wool. Broom establishes more quickly than gorse and can establish at higher altitudes. Gorse and broom can also be detrimental to each ecosystem where they become established, including wetlands, beach dune systems and tussock grasslands.

Gorse and broom affect recreational values by inhibiting access to river margins and reducing stream bank biodiversity. Dense areas of gorse or broom can also harbour pest animals such as possums and rabbits. Gorse and broom seed can be distributed down rivers and water races, or via river gravel, stock movement or heavy machinery. Seeds can remain viable in soil for more than 50 years.

There are large areas in Central Otago that are predominantly gorse and broom free. In these areas, shown in Figure 3 and in more detail in Appendix 3, it is considered that the costs to the production and biodiversity values of allowing these plants to spread are outweighed by the benefits of regional intervention.

At each five yearly Strategy review, these areas will be extended wherever feasible to expand the area of Central Otago that is free of gorse and broom. In the 2001 Strategy review, the Makarora and Nevis River valleys were identified for progressive control. Both these areas were cleared during the term of the 2001 Strategy and are now added to the gorse and broom free areas. During review of this Strategy in 2006, no new progressive control areas were identified.

4.2.2 Objectives

(i) No establishment of gorse or broom in the Gorse and Broom Free Areas.

(ii) Outside these Gorse and Broom Free Areas, no gorse or broom is to occur within 10 metres of a rural property boundary, where the adjacent property is free of gorse or broom within 50 metres of the boundary.

4.2.3 Means of achieving the objectives

- The principal means of achieving the objectives is to use rules requiring occupiers to control gorse and broom.
- Other means include assisting with the spread of biological control agents and providing advice on control methods; and
- Promotion of best practice to land occupiers and contractors, to avoid the spread of gorse and broom as a result of their activities e.g. the use of non pest-infested gravel supplies, or movement of clean agricultural machinery.

4.2.4 Gorse and broom rules

(i) Occupiers in the Gorse and Broom Free Areas (defined in Maps A1 to A11 in Appendix 3) must destroy all gorse and broom on their land.

(ii) Occupiers outside the urban areas, and outside the Gorse and Broom Free Areas (defined in Maps A1 to A11 in Appendix 3), must destroy gorse and broom within 10 metres of a property boundary where the neighbouring property is clear of gorse and broom within 50 metres of that boundary.

Note: enforcement of Rule 4.2.4(ii) will be triggered by complaint only.

Any breach of Rule 4.2.4(i) or 4.2.4(ii) is an offence under Section 154(r) of the Biosecurity Act 1993, and may result in default work under Section 128 of the Act.

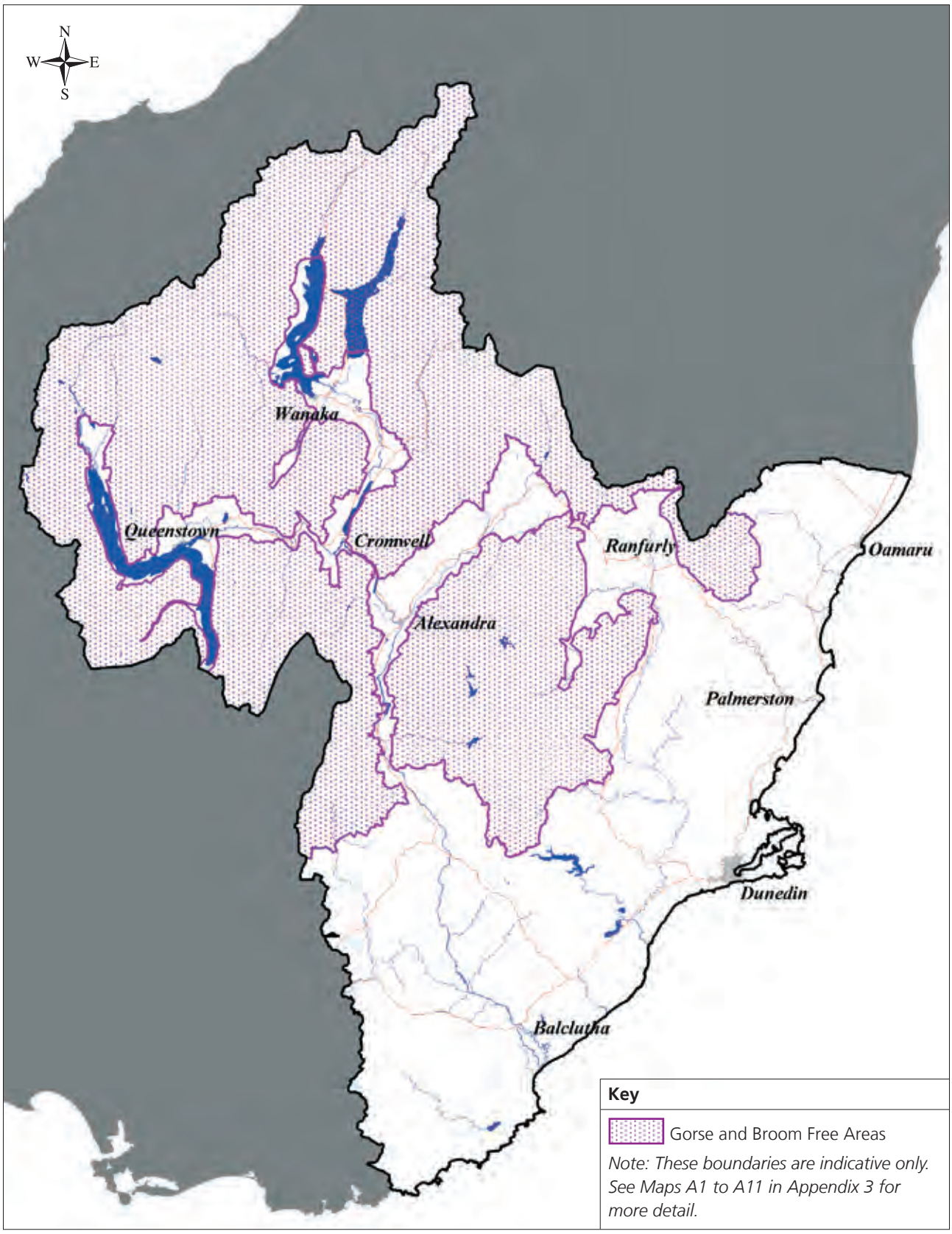
The sale, propagation, breeding, release and commercial display of these organisms is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

4.2.5 Methods for monitoring achievement of objectives

The Council will monitor the effect of the Strategy through:

- Aerial and ground surveys of all land within Gorse and Broom Free Areas;
- Maintaining a record of responses to boundary control complaints.

Figure 3: Overview of Gorse and Broom Free Areas



4.3 Nassella Tussock *(Stipa trichotoma)*

4.3.1 Description and adverse effects

Nassella tussock is a tufted perennial plant with fine leaves that are erect when young, but slightly drooping when older. The leaves feel rough when rubbed downwards. The plant is very similar to native tussocks in appearance, which makes identification difficult. There is a need for specialist identification and control of nassella tussock. A regionally co-ordinated and technically competent approach to control is required.

Mature plants can produce up to 100,000 seeds per year. The seed straw is readily carried by strong winds and can travel many kilometres. It is also distributed by water, gravel, stock and machinery, or on the bark of milled trees. Seeds may survive in the soil for 25 or more years. The plant can rapidly dominate pasture and native grasslands and is unpalatable to stock.

Nassella tussock occurs at several sites in Otago, with the Roxburgh area being the most seriously affected. The low incidence of sites in Otago means that nassella tussock can be controlled sufficiently to contain any new spread and reduce the number of plants at existing sites. Intensive property inspections searching for nassella tussock can take considerable time although the grubbing out of an individual plant takes only seconds.

4.3.2 Objectives

(i) No mature or seeding nassella tussock plants in Otago.

(ii) No new nassella tussock sites established in the region.

4.3.3 Means of achieving the objectives

- The principal means of achieving the objective is to require occupiers to control nassella tussock.
- The Council also undertakes regular monitoring inspections, and as part of that monitoring may destroy any plants found.
- The Council undertakes nassella tussock field days, working with the community to inform and assist occupiers with nassella tussock identification and control techniques.
- The Council will promote best practice to land occupiers and contractors, to avoid the spread of nassella tussock as a result of their activities e.g. the use of non pest-infested gravel supplies, or movement of clean agricultural machinery.
- Occupiers should seek advice from the Council if they are in any doubt as to how to most effectively identify or remove nassella tussock.
- Occupiers should report any suspected new infestations to the Council.

4.3.4 Nassella tussock rule

(i) Occupiers must destroy all nassella tussock on their land.

Any breach of Rule 4.3.4(i) is an offence under Section 154(r) of the Biosecurity Act 1993, and may result in default work under Section 128 of the Act.

The sale, propagation, breeding, release and commercial display of this organism is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

4.3.5 Methods for monitoring achievement of objectives

The Council will monitor the effect of the Strategy through:

- Annual inspection of known nassella tussock sites; and
- Regional surveillance to establish whether any new sites have established.

4.4 Spartina *(Spartina spp)*

4.4.1 Description and adverse effects

Spartina is a perennial estuarine sward grass, growing up to 1 metre tall in shallow saltwater. It was introduced to New Zealand in the 1920s to aid foreshore protection and to reclaim marshes and tidal flats due to its ability to trap sediment. The plant can grow from either seeds or root pieces. Colonies of spartina can vigorously form underground rhizomes or over-ground side shoots.

There is evidence that spartina affects the biological values of estuaries. Spartina produces an almost impenetrable barrier to wading birds that feed along mudflats and reduces their access to food sources. Spartina also alters the hydro-dynamics of important fish spawning and nursery areas. In addition, spartina seriously impedes drainage and can cause flooding of adjacent dry land.

In Otago, spartina sites include the Pleasant River Estuary, Karitane Estuary, and the Lower Taieri Gorge. The densest infestations are now controlled leaving a scattering of plants requiring inspection and small scale control. Annual inspections will continue to ensure progressive eradication of remaining sites and control of any new infestations.

4.4.2 Objectives

(i) No establishment of spartina at new sites.

(ii) Eradication of spartina at existing sites within 10 years.

4.4.3 Means of achieving the objectives

- The principal means of achieving the objectives is to enforce rules requiring occupiers to destroy spartina on their land.
- The Council also undertakes annual monitoring, and as part of that monitoring may destroy any plants found.

4.4.4 Spartina rule

(i) Occupiers must destroy all spartina on their land.

Any breach of Rule 4.4.4(i) is an offence under Section 154(r) of the Biosecurity Act 1993, and may result in default work under Section 128 of the Act.

The sale, propagation, breeding, release and commercial display of this organism is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

4.4.5 Methods for monitoring achievement of objectives

The Council will monitor the effect of the Strategy through:

- Annual monitoring of known sites;
- Recording changes in plant density and distribution.

4.5 Old Man's Beard *(Clematis vitalba)*

4.5.1 Description and adverse effects

Old man's beard is a fast growing perennial vine that quickly forms dense coverings on hedgerows or native bush, and eventually kills its supporting plants. Older vines are woody, often brown or grey, while young vines are ribbed and often purple in colour. The leaf is composed of five leaflets. Fluffy greyish white seed heads are conspicuous in autumn, winter and early spring.

Old man's beard represents an extraordinary threat to the region's biodiversity values. It has the potential to smother indigenous forest, and may also pose a threat to exotic forest plantations and amenity plantings.

Old man's beard is common on properties throughout Otago, with heavy infestations identified in the 2001 Strategy areas along and adjacent to the banks of the Clutha River/Mata-Au, and spreading out up into the hill country downstream of the Roxburgh dam. The Kauru, Kakanui and Waianakarua Rivers were also identified as having significant areas of infestation. All of these areas were identified for progressive control over 8 years in the 2001 Strategy. Significant work by land occupiers over the past 5 years has resulted in control being achieved ahead of the scheduled 8 year period. Crown agencies have contributed to the control programme in the Clutha River/Mata-Au, Kauru, Kakanui and Waianakarua River catchments. It is now important that these areas are not allowed to become reinfested.

4.5.2 Objective

(i) The total control of old man's beard.

4.5.3 Means of achieving the objective

- The principal means of achieving the objective is to use rules that require occupiers to control old man's beard on their land.
- The Council will also provide advice on control techniques for old man's beard and will hold field days to demonstrate these control techniques as required.
- The Council will promote best practice to land occupiers and contractors, to avoid the spread of old man's beard as a result of their activities e.g. the use of non pest-infested gravel supplies, or movement of clean agricultural machinery.

4.5.4 Old man's beard rule

(i) Occupiers must destroy all old man's beard on their land.

Any breach of Rule 4.5.4(i) is an offence under Section 154(r) of the Biosecurity Act 1993, and may result in default work under Section 128 of the Act.

The sale, propagation, breeding, release and commercial display of this organism is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

4.5.5 Methods for monitoring achievement of objective

The Council will monitor the effect of the Strategy through:

- Annual surveys of known old man's beard sites; and
- Regional surveillance to establish whether any new sites of old man's beard are present.

4.6 Lagarosiphon *(Lagarosiphon major)*

4.6.1 Description and adverse effects

Lagarosiphon is present in Lakes Dunstan and Roxburgh and parts of Lake Wanaka. It is also present in the Clutha River/Mata-Au. The Crown and other occupiers are responsible for the control of this lagarosiphon.

The vigorous growth of lagarosiphon displaces and shades out aquatic native plants. Dense areas of lagarosiphon may impede water flows, and cause local deoxygenation of water. Aesthetic values, recreational activities (such as boating, water-skiing and swimming), and water supply intakes may all be adversely affected where lagarosiphon chokes and blocks water bodies. If lagarosiphon is left uncontrolled, large beds can form, come adrift and leave unsightly heaps on the shore.

In seriously affected areas eradication is no longer an option. The primary concern is that lagarosiphon may spread to currently unaffected areas of Lake Wanaka, or to other unaffected water bodies in Otago, Canterbury, Westland and Southland. To prevent this occurring, it is critical that all boat owners and other lake or river users ensure weed is cleaned from their craft and equipment after using infested lakes.

The risk of spread of lagarosiphon into Lake Wakatipu is a major concern. In March 2007, a small infestation was found in the north-eastern end of Frankton Arm as part of routine annual monitoring. These plants were promptly removed and the area is being regularly monitored. To ensure that lagarosiphon does not establish in Lake Wakatipu, the Council is implementing a new management regime.

In other water bodies where complete eradication is no longer possible, lagarosiphon will be controlled in high value areas. These areas are considered as high value for amenity reasons, and include boat ramps and swimming beaches. For Lake Wanaka, the treatment of these areas is addressed by the 10 year Lagarosiphon Management Plan for Lake Wanaka

2005–2015[3]. For Lake Dunstan, high value areas are identified in Appendix 4 (Maps B4–B16).

The disposal of aquarium or pond contents containing lagarosiphon into a drain, creek or pond can lead to new infestations. Once introduced into a water body, lagarosiphon can spread rapidly. The spread of lagarosiphon within a water body is assisted by water currents, wave action, boating and other activities, all of which encourage dispersal of shoot fragments.

The most pressing need is to prevent the spread of lagarosiphon to lakes of national significance where it is not currently present, such as Lake Wakatipu. Annual education programmes will help to prevent this from occurring.

4.6.2 Objectives

(i) Prevention of spread of lagarosiphon into any new water bodies, particularly Lake Wakatipu.

(ii) Prevention of further spread into largely unaffected areas of Lake Wanaka (see containment area boundary given on Maps B1–B3 in Appendix 4).

(iii) Control of lagarosiphon infestations in Lakes Dunstan and Wanaka in high value amenity areas (see Maps B4–B16 in Appendix 4 and the 10 year Lagarosiphon Management Plan for Lake Wanaka 2005–2015).

(iv) No lagarosiphon in Otago's ponds or aquariums.

4.6.3 Means of achieving the objectives

- Requiring occupiers and encouraging the Crown to destroy lagarosiphon in areas outside the lagarosiphon containment area, and to manage lagarosiphon in high value areas of Lakes Dunstan and Wanaka.
- Educating users of infested water bodies to clean their boats and equipment of weed as they leave that water body.
- Encouraging the Crown to destroy existing infestations in areas in Lake Wanaka that may be a significant source of drift weed.
- Educating the public not to use lagarosiphon in ponds or aquariums and seeking public support for notifying suspected sightings.
- Implementing a lagarosiphon eradication strategy in Lake Wakatipu, focussed on the north-eastern end of Frankton Arm, and elsewhere as necessary. Ongoing monitoring will allow the Council to respond quickly where lagarosiphon is identified, to ensure full eradication of lagarosiphon in Lake Wakatipu.
- The Council will work with occupiers of high value areas to ensure that lagarosiphon control is undertaken in a co-ordinated and effective manner.
- On any lake beds where lagarosiphon is present, occupiers may agree with the Council a written control programme that contains an objective to reduce the coverage and growth of lagarosiphon by 1 October 2012 or earlier, and a description of:
  - (a) methods to be used to achieve the objective;
  - (b) areas to be treated with those methods;
  - (c) the timetable for the use of those methods; and
  - (d) adjoining areas to be jointly managed where practicable.

[3] A 10 year Lagarosiphon Management Plan for Lake Wanaka 2005–2015 has been prepared by the Lake Wanaka Lagarosiphon Management Team, which comprises Land Information New Zealand, Department of Conservation, Otago Regional Council, Queenstown Lakes District Council and the Guardians of Lake Wanaka.

4.6.4 Lagarosiphon rules

(i) Occupiers other than occupiers of:

(a) Parts of the southern end of Lake Wanaka[4], as shown on Maps B1–B3 in Appendix 4; and

(b) All of the bed of Lake Dunstan, excluding the high value areas shown on Maps B4–B16 in Appendix 4; and

(c) All of the bed of Lake Roxburgh; and

(d) All of the bed of the Clutha River/Mata-Au, from its source at the outlet of Lake Wanaka to the sea (other than the beds of Lakes Dunstan and Roxburgh);

must destroy lagarosiphon on the beds of water bodies occupied by them.

(ii) Occupiers within Lake Dunstan high value areas shown on Maps B4–B16 in Appendix 4, must control all lagarosiphon within those areas; and

(iii) Boat owners and other water users must remove all fragments of lagarosiphon from boats and equipment immediately upon leaving the waters of Lakes Dunstan, Wanaka or Roxburgh or from the Clutha River/Mata-Au.

(iv) Occupiers must destroy all lagarosiphon in any pond or aquarium on their land.

Any breach of Rule 4.6.4(i), 4.6.4(ii) or 4.6.4(iii) is an offence under Section 154(r) of the Biosecurity Act 1993, and may result in default work under Section 128 of the Act.

Note: The Regional Plan: Water for Otago prohibits the introduction of lagarosiphon to the bed or water of any Otago lake or river, and the sale, propagation, breeding, release and commercial display of this organism is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

4.6.5 Methods for monitoring achievement of objectives

The Council will monitor the effect of the Strategy through:

- Monitoring known infestations of lagarosiphon in lakes;
- Monitoring water bodies currently free of lagarosiphon to ensure establishment does not occur;
- Responding to enquiries regarding ponds and aquariums.

[4] Control of lagarosiphon in amenity areas of Lake Wanaka is addressed by the "10 year Lagarosiphon Management Plan for Lake Wanaka 2005–2015".

4.7 Contorta Pine *(Pinus contorta)*

4.7.1 Description and adverse effects

Contorta pine, or *Pinus contorta*, is a forest tree from Western North America which has proved to be an aggressive coloniser, particularly in native grasslands at higher altitudes. Seed production starts early, at age 6–8 years. The seeds are light and capable of spreading long distances with the wind. Seeds have the potential to germinate in gaps in forests, native grasslands and any lightly vegetated or lightly grazed areas.

Infestations of wilding *Pinus contorta* in tussock grasslands can change open grassland ecosystems into closed-canopy, single species forest. It can also compromise production values by suppressing pasture in densely affected areas. *Pinus contorta* is capable of causing serious impacts on production and biodiversity values. At the present time, total control is still possible at reasonable cost.

Crown agencies were responsible for planting *Pinus contorta* around Otago, most of which was planted by the former New Zealand Forest Service in the 1920s. Current occupiers are not responsible for planting these trees. Parts of Otago where substantive *Pinus contorta* stands remain are shown in Appendix 5 as Contorta Clearance Areas. The forest companies which occupy these Clearance Areas have made good progress in clearing them. Surrounding these areas are Contorta Containment Areas where the occupier has undertaken to contain *Pinus contorta* within the boundary, usually by maintaining a closed canopy of another species above any wilding *Pinus contorta* that germinate, and by felling any regenerating *Pinus contorta*, particularly near the containment area boundaries.

4.7.2 Objectives

(i) The total control of any *Pinus contorta* outside of the Contorta Containment Areas shown in Appendix 5.

(ii) The total control of any spread of *Pinus contorta* from within these Contorta Containment Areas, shown in Appendix 5.

(iii) The progressive control of all *Pinus contorta* within Contorta Clearance Areas shown in Appendix 5, so that these areas are felled within 5 years of this Strategy becoming operative[5].

4.7.3 Means of achieving the objectives

- The principal means of achieving the objective is to require occupiers to destroy all *Pinus contorta*.
- Forest companies which occupy containment areas will ensure that no spread of *Pinus contorta* seed occurs beyond those boundaries.
- The Council will, in monitoring for other pest plants, identify *Pinus contorta* and as part of that monitoring may destroy any plants found, where this can be achieved at negligible cost to the Council.
- The Council will also work with the community to inform occupiers of *Pinus contorta* identification and control techniques, and will assist, where appropriate, with community-run control work.
- The Council will work with occupiers of Contorta Clearance Areas identified in Appendix 5 to ensure that trees at more exposed sites are cleared first.

4.7.4 Contorta pine rules

(i) Occupiers must destroy all *Pinus contorta* on their land, except within the Contorta Clearance Areas and Contorta Containment Areas defined in Appendix 5.

(ii) Occupiers within a Contorta Clearance Area defined in Appendix 5 must progressively destroy all *Pinus contorta* within that Contorta Clearance Area so that:

(a) The whole of the land occupied by them in that Area is clear of *Pinus contorta* within 5 years of this Strategy becoming operative[5]; and

(b) After 5 years of this Strategy becoming operative[5], occupiers must ensure that all *Pinus contorta* in a Contorta Clearance Area are destroyed prior to them producing cones.

(iii) Occupiers within a Contorta Containment Area defined in Appendix 5 must ensure that no coning-age *Pinus contorta* tree is in a position where its seed could spread beyond the boundaries of that Contorta Containment Area.

Any breach of Rule 4.7.4(i), 4.7.4(ii) or 4.7.4(iii) is an offence under Section 154(r) of the Biosecurity Act 1993, and may result in default work under Section 128 of the Act.

The sale, propagation, breeding, release and commercial display of this organism is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

4.7.5 Methods for monitoring achievement of objectives

The Council will monitor the effect of the Strategy through:

- Three yearly surveys of known areas; and
- Areas downwind of known *Pinus contorta* infestations.

[5] The operative date of this Strategy is 1 August 2009.

Ragwort

Nodding Thistle

4.8 Ragwort *(Senecio jacobaea)* and Nodding Thistle *(Carduus nutans)*

4.8.1 Description and adverse effects

Ragwort is an erect annual to biennial herb that becomes a perennial should its growth be interfered with, e.g. by mowing or pulling. It reproduces from crowns, roots and seeds and commonly grows to a height of between 0.45 and 0.60 metres, but has been known to grow as high as 1.6 metres.

Ragwort is found throughout the region on dairy farms, deer farms and horse stud farms due to the absence of sheep that will graze young plants. Ragwort can also be a problem on lightly grazed sheep pasture. Ragwort contains poisonous alkaloids that cause liver cirrhoses, photosensitisation, jaundice and wasting in stock. Poisoned animals may take some months to die.

Nodding thistle is an annual or biennial plant with erect flowering stems up to 1.5 metres tall. Large crimson flowers droop when mature. Similar to scotch thistle, nodding thistle is more erect and spiny and is considered the most aggressive of all thistles in its ability to invade pasture. It grows in dense patches preventing access to pasture.

Nodding thistle is found on sheep farming areas in many parts of Otago. Each plant can produce up to 10,000 seeds. Resistant to drought, nodding thistle seed can remain viable for up to 20 years.

4.8.2 Objectives

(i) Maintain a 50 metre strip along rural property boundaries clear of ragwort, where that neighbouring property is clear of ragwort within 50 metres of that boundary.

(ii) Maintain a 100 metre strip along rural property boundaries clear of nodding thistle, where that neighbouring property is clear of nodding thistle within 100 metres of that boundary.

4.8.3 Means of achieving the objectives

- The principal means of achieving the objective is to use rules requiring control actions so that the Strategy's objectives are achieved.
- Other means include assisting with the spread of biological control agents and providing advice on control methods; and
- Promoting best practice to land occupiers and contractors, to avoid the spread of ragwort and nodding thistle as a result of their activities e.g. the use of non pest-infested gravel supplies, or movement of clean agricultural machinery.

4.8.4 Ragwort and nodding thistle rules

(i) Occupiers outside the urban areas must destroy ragwort within 50 metres of a property boundary where the neighbouring property is clear of ragwort within 50 metres of that boundary.

(ii) Occupiers outside the urban areas must destroy nodding thistle within 100 metres of a property boundary where the neighbouring property is clear of nodding thistle within 100 metres of that boundary.

Any breach of Rule 4.8.4(i) or 4.8.4(ii) is an offence under Section 154(r) of the Biosecurity Act 1993, and may result in default work under Section 128 of the Act.

Note: enforcement of Rule 4.8.4(i) and 4.8.4(ii) will be triggered by complaint only.

The sale, propagation, breeding, release and commercial display of these organisms is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

4.8.5 Methods for monitoring achievement of objectives

The Council will monitor the effect of the Strategy through:

- Maintaining a record of responses to boundary control complaints.

4.9 Bomarea *(Bomarea caldasii and Bomarea multiflora)*

4.9.1 Description and adverse effects

Bomarea is a multi-stemmed vigorous vine that climbs and attaches to any available support. In summer, orange trumpet shaped flowers are produced in drooping clusters of 15-20 flowers. The plant produces bright orange seeds that are dispersed by birds.

Originally from South America, bomarea was introduced as a garden plant but has escaped from the garden into the environment. Bomarea vines are now invading native bush areas around Dunedin and the Otago Peninsula. The vine grows up through the bush canopy, blocking light to the host tree. Bomarea may have a similar potential to damage native bush as old man's beard.

Bomarea is currently only known to be present in the Dunedin area and it may be possible to eradicate this plant from Otago in the medium term. This will avoid a larger and more expensive problem eventuating in the future.

4.9.2 Objectives

(i) Eradication of bomarea from Otago Peninsula within 5 years of this Strategy becoming operative[6].

(ii) Eradication of bomarea from Otago within 10 years of the Strategy becoming operative[6].

4.9.3 Means of achieving the objectives

- The principal means of achieving the objectives is to enforce rules requiring occupiers to destroy bomarea on their land.
- The Council will also undertake regular monitoring and as part of that monitoring may destroy any plants found.
- In certain situations, the Council may assist in destroying bomarea for biodiversity values using the approach outlined in Chapter 6.
- The Council intends using an education campaign to encourage the community to assist in eradicating bomarea from Otago.

4.9.4 Bomarea rule

(i) Occupiers must destroy all bomarea on their land.

Any breach of Rule 4.9.4(i) is an offence under Section 154(r) of the Biosecurity Act 1993, and may result in default work under Section 128 of the Act.

The sale, propagation, breeding, release and commercial display of this organism is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

4.9.5 Methods for monitoring achievement of objectives

The Council will monitor the effect of the Strategy through:

- Annual monitoring of known sites, recording changes in plant density and distribution.

[6] The operative date of this Strategy is 1 August 2009.

4.10 Low Incidence Pest Plants

African feather grass *(Pennisetum macrourum)*

Cape ivy *(Senecio angulatus)*

African love grass *(Eragrostis curvula)*

Perennial nettle *(Urtica dioica)*

Boneseed *(Chrysanthemoides monilifera)*

Spiny broom *(Calicotome spinosa)*

Bur daisy *(Calotis lappulacea)*

White-edged nightshade *(Solanum marginatum)*

4.10.1 Description and adverse effects

The above pest plants are all 'low incidence' plants. The small and widely scattered patches infested by these plants may be treated quickly on an annual basis by Council staff. If not controlled, these plants have the potential to rapidly colonise and displace pasture species or disrupt indigenous ecosystems.

Each of these low incidence pest plants is capable of causing significant damage to regionally significant economic values, biodiversity values or human health and enjoyment. The benefit of eradicating these pest plants from Otago far outweighs the low cost of ongoing monitoring and associated control works.

4.10.2 Objectives

(i) No new infestations of low incidence pest plants outside of their current areas of infestation.

(ii) Total control of low incidence pest plants at known sites.

(iii) A decreasing trend of at least two of these low incidence pest plant species within 5 years of this Strategy becoming operative[7].

4.10.3 Means of achieving the objectives

- The principal means of achieving the objectives is to enforce rules requiring occupiers to destroy any of these low incidence pest plants on their land. Land occupiers are ultimately responsible for the control of these organisms under the rule below.
- The Council also undertakes regular monitoring and as part of that monitoring may destroy any plants found.
- The Council will also provide advice on control techniques for these pest plants, and encourage and educate land occupiers to identify these plants and inform the Council if they are found to be present.
- The Council will promote best practice to land occupiers and contractors, to avoid the spread of African feather grass, African love grass, boneseed, bur daisy, cape ivy, perennial nettle, spiny broom and white-edged nightshade as a result of their activities e.g. the use of non pest-infested gravel supplies, or movement of clean agricultural machinery.

4.10.4 Low incidence pest plant rule

(i) Occupiers must destroy all African feather grass, African love grass, boneseed, bur daisy, cape ivy, perennial nettle, spiny broom and white-edged nightshade on their land.

Any breach of Rule 4.10.4(i) is an offence under Section 154(r) of the Biosecurity Act 1993, and may result in default work under Section 128 of the Act.

The sale, propagation, breeding, release and commercial display of these organisms is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

4.10.5 Methods for monitoring achievement of objectives

The Council will monitor the effect of the Strategy through:

- Periodic monitoring of known sites of low incidence pest plants, recording density and distribution, to ensure effective control is being undertaken.

[7] The operative date of this Strategy is 1 August 2009.

4.11 Pest Infested Gravel Supply Sites

4.11.1 Description and adverse effects

A gravel supply site includes a gravel pit, gravel stockpile, riverbed, or riverbank gravel extraction site. If such sites become infested by nassella tussock or old man's beard and the gravel is spread along roads or farm tracks, it can result in the spreading of pest plant seed to new areas. The control of new pest infestations caused by infested gravel spread can be very expensive and new infestations can themselves become a source for further pest spread.

The Council must act quickly to close infested gravel supply sites, in order to prevent the spread of old man's beard and nassella tussock into currently unaffected areas. Other pest plant species are not covered by this chapter because:

(a) Gorse, broom, ragwort and nodding thistle are too widespread for this approach to be effective; and

(b) Gravel supply sites are unlikely to be a significant vehicle for spread regarding other pest plant species.

4.11.2 Objective

(i) No new infestations of nassella tussock or old man's beard to occur as a result of gravel being spread from infested gravel supply sites.

4.11.3 Means of achieving the objective

- Where a gravel supply site is found to be infested with nassella tussock or old man's beard seed, the Council may declare the site a restricted place or a controlled area under Sections 130 and 131 of the Biosecurity Act 1993, respectively, and require that no gravel be removed from that site, or place conditions on extraction, until such time as the site can be shown to be free of the pest infestation.
- The principal means of achieving the objective is to use the Council's powers under the Biosecurity Act 1993 to close any affected gravel supply site.
- The Council will encourage users of gravel supply sites to control pest plants and other undesirable plants in and around these sites to help prevent the spread of pest plants and other undesirable weeds.

4.11.4 Pest infested gravel supply sites powers

(i) When the Council declares a gravel supply site a restricted place or a controlled area under Sections 130 or 131 of the Biosecurity Act 1993, the removal of gravel from that site is prohibited under Section 134 of the Biosecurity Act 1993.

Any breach of Sections 130, 131 or 134 of the Biosecurity Act 1993 is an offence under Section 154 of the Biosecurity Act 1993 and may result in a fine or imprisonment.

4.11.5 Methods for monitoring achievement of objective

The Council will monitor the effect of the Strategy through:

- Periodic monitoring of gravel supply sites throughout Otago, ensuring pest plants do not infest such sites.

4.12 Wilding Conifers

4.12.1 Description and adverse effects

This section applies to the following conifer species, listed below:

Common Name	Scientific Name
Douglas fir	Pseudotsuga menziesii
Lodgepole or contorta pine	Pinus contorta
Scots pine	Pinus sylvestris
Dwarf mountain pine	Pinus mugo
Mountain pine	Pinus unicinata
Bishops pine	Pinus muricata
Maritime pine	Pinus pinaster
Ponderosa pine	Pinus ponderosa
Corsican pine	Pinus nigra
European larch	Larix decidua
Radiata pine	Pinus radiata

Wilding conifers are invasive, particularly in tussock grassland ecosystems and have negative effects on the environment, the enjoyment of the natural environment and the economic wellbeing.

4.12.2 Objective

(i) To eradicate wilding conifers within the Management Units shown in Appendix 6. Maps 6.1 – 6.5.

4.12.3 Immediate outcomes

(i) To eradicate the infestation level of wilding conifers to zero in the Management Units.

4.12.4 Eradication Programme

(i) Facilitating community groups, landowners and occupiers to carry out wilding conifer eradication within the Management Units.

4.12.5 The extent and timeframe to which the eradication is expected to be achieved

(i) Dunstan Management Unit – eradication by May 2020;

(ii) St Mary Ida Management Unit – eradication by May 2020;

(iii) Lammermoor Management Unit – eradication by May 2020;

(iv) Kawarau Management Unit – eradication by May 2020 for majority of the unit. Progress towards eradication by 2030 for the remainder;

(v) Remarkables Management Unit – eradication by May 2020 for majority of the unit. Progress towards eradication by 2030 for the remainder;

(vi) Northern Eyre Management Unit – eradication by May 2020 for majority of the unit. Progress towards eradication by 2030 for the remainder;

(vii) Glenorchy Management Unit – eradication by May 2020 for majority of the unit. Progress towards eradication of shelter belts and other seed sources by 2030.

4.12.6 Methods for monitoring achievement of objective

(i) The council will monitor the effect of the eradication programme every three years.

5.1 Introduction

Forms of management required for animal pests include, total control, which is the prompt eradication of a species, progressive control, which allows a period of time for eradication to be achieved, and containment control, which allows a pest to be present within defined areas.

The three forms of management required by the rules for pest animals under this Strategy, relate to the specific nature of those pests. These are:

- Total control required everywhere in Otago;
- Progressive control required over a period of time; and
- Containment required in identified areas.

The rules set in this chapter impose requirements on land occupiers as follows:

- Rabbits and hares: containment control, by requiring rabbits and hares to be controlled at or below the Maximum Allowable Limits set in the Strategy.
- Wallaby: total control, with the intention to prevent wallaby from establishing in Otago.

Land occupiers have various obligations related to the control of these animals on their land. These obligations are set out in the following sections.

With regard to rooks, the Council undertakes progressive control, with the intention to significantly reduce rooks in number, and ultimately eradicate them from Otago. Land occupiers are requested to report rook sightings to the Council.

5.2 Feral Rabbits *(Oryctolagus cuniculus)* and Hares *(Lepus europaeus)*

5.2.1 Description and adverse effects

Primary productivity may be lost if rabbits are not controlled, and neighbours can have costs imposed on them when a land occupier neglects rabbit control.

Uncontrolled rabbit grazing causes grasslands and shrub land to be replaced with low, herbaceous and mat-forming vegetation, affecting pastoral production and biodiversity. In general, rabbits compete for grass with other farm animals and cause land degradation. Loss of vegetation reduces soil organic matter, and soils with low organic matter have reduced water-holding capacity and permeability, and therefore reduced soil fertility. Rabbit grazing can also cause soil erosion and stream bank erosion, which can in turn affect water quality. Rabbits may affect native invertebrates and birds by causing changes to habitat, and altering predator-prey relationships.

Rabbit populations have varying levels of immunity to Rabbit Haemorrhagic Disease (RHD). RHD epidemics will result in some population control, however, the level and timing of such epidemics cannot be relied upon, therefore other forms of control are required to ensure populations do not increase. Other control techniques include the use of poisons, shooting and fumigation. Best results from control come from well-planned programmes that are undertaken with consideration to rabbit barriers such as rabbit-proof fences or rivers. In many cases programmes that coordinate the joint efforts of land occupiers situated between such barriers will be required.

The Modified McLean scale (given in Appendix 1) is used to assess rabbit infestation, giving maximum allowable limits (MALs) on a scale of 1 to 8, and is the agreed methodology for assessing rabbit infestation by all agencies involved in rabbit control in New Zealand.

Currently, rabbit control on properties across Otago is generally able to retain MAL 3, although parts of Central Otago are particularly rabbit-prone. This was recognised and allowed for by the Pest Management Strategy for Otago (2001) with MAL 4 or 5 in those rabbit-prone areas. Despite this higher limit, it was common to have rabbits present at levels higher than MAL before control programmes were fully implemented, creating issues of rabbits spreading to neighbouring properties with effective rabbit control. For this Strategy, MAL 3 has been selected for the entire Otago region. MAL 3 for Central Otago may be difficult to achieve on some properties, and effective transitional control programmes will need to be put in place as soon as possible to ensure MAL 3 is reached by 1 October 2012.

Hares are not such a significant pest within Otago in their own right, but they are addressed together with rabbits, because their superficial similarity prevents them being usefully distinguished for management purposes.

5.2.2 Objectives

(i) On land where the maximum allowable limit (MAL) of 3 on the modified McLean Scale is not exceeded, the maintenance of combined rabbit and hare infestations at levels below MAL 3.

(ii) On land where MAL 3 is exceeded, the reduction of combined rabbit and hare infestations to MAL 3 or less, by 1 October 2012, or earlier.

5.2.3 Means of achieving the objectives

- Rules require rabbit and hare control actions so that MAL 3 is not exceeded. Where MAL 3 is exceeded, a control programme is required to ensure progressive reduction in rabbit and hare infestations.
- The Council will require the use of compatible or joint control programmes for adjoining properties, where rabbit and hare infestations exceed MAL 3.
- Where adjoining properties have different levels of combined rabbit and hare infestations (with any one property exceeding MAL 3), the Council will take compliance action to ensure prompt implementation of effective control programmes, giving priority to achieving MAL 3 on each property.
- The principal means of achieving the objective of MAL 3 across Otago is to require occupiers to use effective control techniques, and to develop approved control programmes.
- The Council can assist in the development of control programmes.

5.2.4 Feral rabbit and hare rule

(i) On land where under the Pest Management Strategy for Otago (2001), the maximum allowable level for rabbits and hares was greater than 3 on the modified McLean Scale (shown in Figure 4) and where the level on that land exceeds 3 on the modified McLean Scale on 1 August 2009, then the occupier must have an approved control programme to ensure a reduction in combined rabbit and hare infestation to a level of 3 or less on the modified McLean Scale by 1 October 2012, or such longer time as the Otago Regional Council may, in its discretion, approve.

(ii) On all other land (not being land in 5.2.4(i)), occupiers must ensure that rabbit and hare numbers are maintained at or less than a level of 3 on the modified McLean Scale. If rabbit and hare numbers exceed the maximum allowable level of 3 on the modified McLean Scale, the occupier must have an approved control programme to ensure reduction of combined rabbit and hare infestations to a level of 3 or less on the modified McLean Scale by 1 October 2012.

(iii) Where an approved control programme is required:

(a) The occupier must submit a written control programme to the Otago Regional Council for approval.

(b) The written control programme must be submitted within two months of a written requirement being made by the Otago Regional Council.

(c) The written control programme must contain an objective to reduce combined rabbit and hare infestations to a level of 3 or less on the modified McLean Scale and include a description of:

(i) Methods to be used to achieve the objective; and

(ii) Areas to be treated with those methods; and

(iii) The timetable for the use of those methods.

(d) The Otago Regional Council will grant approval of a written control programme, if it is satisfied that the programme is reasonably capable of achieving the objective, having regard to:

(i) The nature and characteristics of the land that exceeds a maximum allowable level of 3 on the modified McLean Scale.

(ii) The nature and use of surrounding land.

(iii) The potential for rabbit and hare dispersion.

(iv) The risks to the environment and land protection from rabbit and hare infestation.

(v) The practicality of available control methods on the land.

(e) Control programmes for adjoining properties must be compatible or jointly undertaken where a lack of rabbit barriers exist.

(iv) An occupier must implement an approved control programme for the occupier's land.

Any breach of Rule 5.2.4(iii)(b) or 5.2.4(iv) is an offence under Section 154(r) of the Biosecurity Act 1993 and may result in default work under Section 128 of the Act. This means that if occupiers do not have an approved control programme, or fail to implement their approved control programme, the Otago Regional Council may at its discretion undertake such rabbit and hare control work as necessary and recover costs from the occupier.

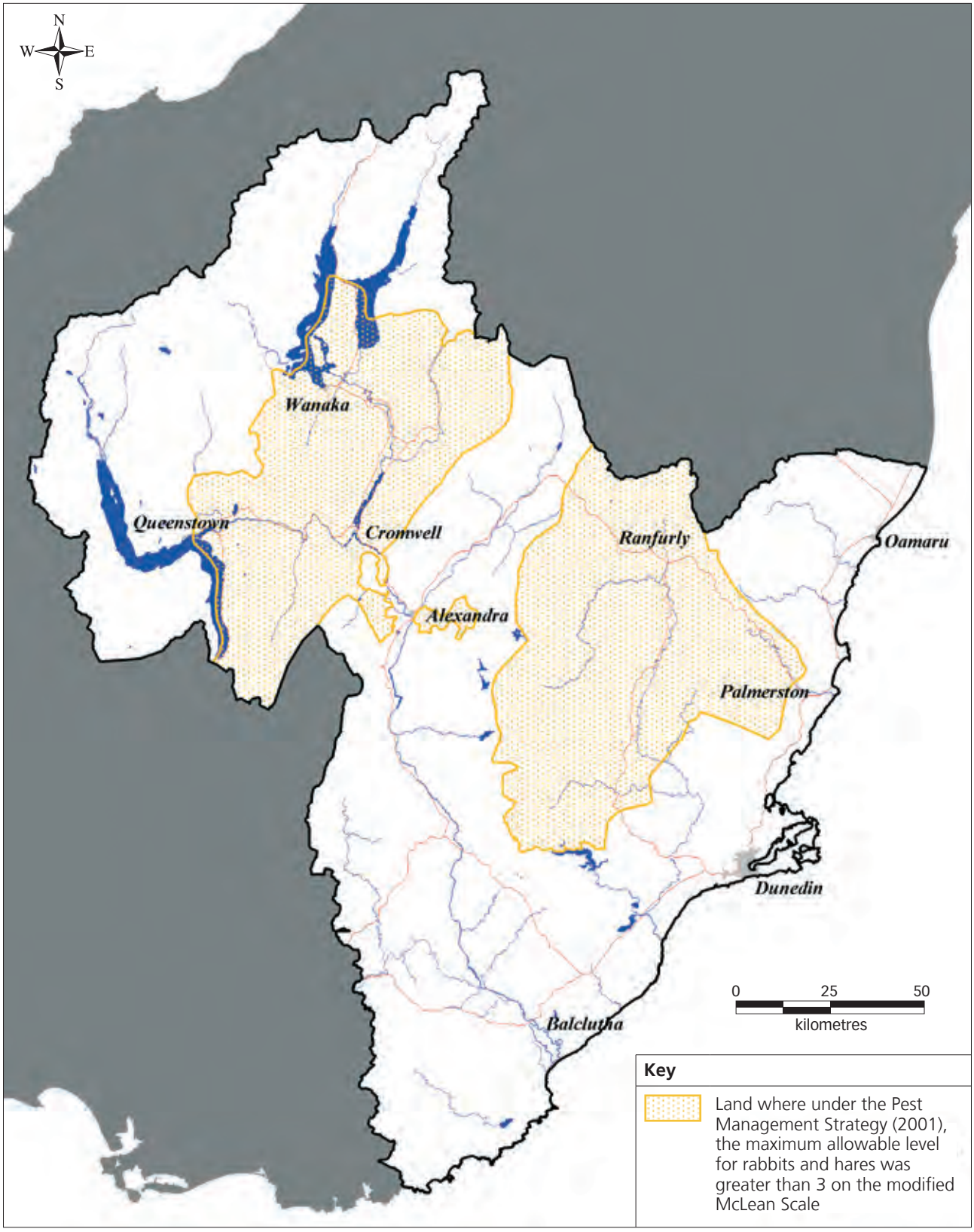
The sale, breeding, release and commercial display of these organisms is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

5.2.5 Methods for monitoring achievement of objectives

The Council will monitor the effect of the Strategy through:

- Establishment and maintenance of a complaints register.
- Assessment of rabbit and hare numbers using the modified McLean Scale.
- Use of 'night counts' to establish population trends.
- Monitoring of the implementation of control programmes, and annual review of control programmes.

Figure 4: Land where under the Pest Management Strategy for Otago (2001), the maximum allowable level for rabbits and hares was greater than 3 on the modified McLean Scale



5.3 Rooks *(Corvus frugilegus)*

5.3.1 Description and adverse effects

Rooks are part of the family of birds that includes crows and ravens. Rooks are larger than magpies and totally black. They were brought to New Zealand between 1862 and 1873 by early settlers to control insect pests.

Large flocks of rooks can cause serious damage to agricultural crops, including cereals, nuts, fruit and vegetables. They also cause physical damage to pasture while foraging for invertebrates. In late summer, rooks can cause extensive damage to ripening cereal crops of wheat, oats and barley. Control efforts in recent years have been successful in significantly reducing the population.

Rook distribution in Otago is currently limited to a few small to medium-sized rookeries (groups of nests) centred on the Strath Taieri and in South Otago. Shooting at rooks can lead to the birds becoming wary and much more difficult to control. It can also cause fragmentation of the rookeries, and the establishment of new rookeries in new areas, exacerbating the problem.

5.3.2 Objective

(i) To eradicate the rook population in Otago, estimated at 150 birds in August 2006.

5.3.3 Means of achieving the objective

- The Council requests occupiers to inform them of any rook sightings. Note there is no cost to the occupier for the control of rooks.
- The Council will carry out inspections and control work during the months of September to November every year.
- Shooting at rooks is prohibited because the birds are likely to scatter and establish a greater number of new colonies.

5.3.4 Rook rule

No person shall:

(i) Poison, capture or trap any rook, unless under the instruction or supervision of an authorised person; or

(ii) Discharge any firearm at any rook; or

(iii) Operate any bird-scaring device or discharge any firearm within 500 metres of any tree containing a rook nest, during the months of September, October or November in any year; or

(iv) Damage, disturb or interfere in any other way with a rook nest, during the months of September, October or November in any year.

This rule does not apply to the activities of an authorised person in exercising or performing any function, power or duty under this Strategy.

Any breach of Rule 5.3.4 is an offence under Section 154(r) of the Biosecurity Act 1993.

The sale, breeding, release and commercial display of this organism is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

5.3.5 Methods for monitoring achievement of objective

Because rookeries are readily identifiable, the Council will monitor the effect of the Strategy through:

- The monitoring of trends in the number of occupied rook nests, as an effective means of estimating total numbers of birds. This will readily determine the degree of success of control measures.

5.4 Bennett's Wallaby *(Macropus rufogriseus rufogriseus)*

5.4.1 Description and adverse effects

There is no known feral population of wallabies in Otago. However, wallabies occupy approximately 300,000 hectares of land in South Canterbury, centred on the Hunter Hills. The Canterbury Regional Pest Management Strategy 2005–2015 identifies a Wallaby Containment Area which has the Waitaki River as the southern border. Within that Containment Area wallaby are to be kept at or below Level 3 on the Guilford Scale, and outside the Containment Area land occupiers are required to report any sightings.

These animals have the potential to cause serious environmental effects should a feral population establish in Otago as they can occupy a variety of habitats from forest to tussock grasslands. There is a chance that these pests could spread from South Canterbury, either naturally or by intentional release.

5.4.2 Objective

(i) To prevent the establishment of wallaby in Otago.

5.4.3 Means of achieving the objective

- Require all wallaby to be destroyed and reported.

5.4.4 Wallaby rules

(i) Occupiers must destroy all wallaby on their land.

(ii) Occupiers must notify the Otago Regional Council of the presence of wallaby on the land they occupy, regardless of whether or not the wallaby has been destroyed. The notification must be made within 2 working days of the land occupier becoming aware of, or being advised of, the presence of wallaby on the land that they occupy.

Any breach of Rule 5.4.4(i) or 5.4.4(ii) is an offence under Section 154(r) of the Biosecurity Act 1993.

The sale, breeding, release and commercial display of this organism is restricted by Sections 52 and 53 of the Biosecurity Act 1993.

5.4.5 Methods for monitoring achievement of objective

The Council will monitor the effect of the Strategy through:

- Communication with Environment Canterbury and through the reporting by land occupiers and the public of any presence of wallaby.

The Regional Policy Statement for Otago (RPS) identifies loss of biodiversity as a significant issue. To protect Otago's biodiversity, policies in Chapter 10 of the RPS refer to the use of pest management strategies, and promotion and education of pest and weed control.

There are three broad approaches to biosecurity management:

- Pest-led;
- Site-led; and
- Education and promotion.

The Act is designed for a pest-led approach, and Chapters 4 and 5 of this Strategy use this pest-by-pest approach. That approach will not always protect biodiversity values, because many organisms that affect biodiversity values do not meet the requirements of the Act and therefore are not declared pests in the Strategy. However, controlling these other organisms can protect the biodiversity values at specific sites.

The Council supports the use of site-led responses for biodiversity benefits. It is not necessary to use rules under the Act to achieve this. A site-led approach is more efficient where weeds or pests are creating a problem only at specific sites. A site-led response involves:

(a) Identification of the sites and the biodiversity values to be protected; and

(b) At each site, management of the threats to those values.

A site-led approach does not require a list of pests to be prepared. It can go beyond pest or weed control to fencing or other management actions. The objective of the approach is to maintain identified values at specific sites.

The Council is committed to promoting biodiversity values by providing practical assistance to landowners and community groups who wish to protect such values. This assistance is intended to have clear, measurable outcomes using a strategic but targeted approach.

The Council's responses to biodiversity needs will not be specifically developed under the Act. The Resource Management Act 1991 and the Local Government Act 2002 will be used to enable an overarching approach that applies across all the Council's responsibilities and is implemented directly through the annual planning and funding process.

Education and promotion tools, though not provided for by the Act, are essential to inform the public of the Council's programmes and objectives. The Council will continue to use these tools extensively, as the Council considers appropriate, to achieve the Strategy objectives as well as wider biodiversity objectives.

Chapter 7 of this Strategy specifies initiatives that will be implemented for the pests named in the Strategy (in addition to rules), and for biodiversity protection purposes.

The Council is interested in actively supporting community-led initiatives. The community is invited to make submissions to the Council's successive Draft Annual Plans to suggest biodiversity projects, including education and promotion initiatives.

7. Otago Regional Council Pest Management Responsibilities

7.1 Inspection, monitoring and surveillance

The Council will undertake inspections, monitoring and surveillance as required to implement this Strategy. This monitoring and surveillance includes looking for any new organisms that might possibly become established as pests. Any new organism that appears to be a serious threat will be assessed as to its distribution, controllability and the level of threat. Once this has been done the Council will be able to consider whether the use of Section 100 of the Act is justified.

7.2 Publicity, information and advice

(i) The Council will provide publicity, information and advice on methods to prevent new pest infestations. A pest identification directory (including colour pictures and control advice for pests and other undesirable organisms) has been developed on the Council's website, and brochures regarding pest control are available.

(ii) The Council will actively encourage landowners and occupiers to maintain the control of existing pests by developing and implementing education programmes, and promoting appropriate land management practices.

(iii) The Council will support community-led initiatives to combat localised amenity or biodiversity problems caused by the spread of undesirable pests, by providing educational information and technical advice.

These methods will ensure consistent, regionally coordinated action on pest control. The Council has, or is able to get information on a wide range of undesirable plants and animals, and the most appropriate and successful methods of control for a range of circumstances. Advice on the most appropriate control method to use is available by calling the Council on freephone 0800 474 082.

The Council will ensure that new information is passed on to the general public by way of field days, brochures and newspaper articles as appropriate.

7.3 The Otago Regional Council Business Unit

The Council will maintain a competitive pest-focused business unit which will:

- Provide a professional pest control service, on a user pays basis, for the control of pests and other nuisance animals and plants.
- Provide a trap hire service including traps for the control of magpies, possums, feral cats and mustelids, a service widely used in Otago's urban areas.

7.4 Biological control

Biological control is one of a number of methods that can be used in combination with other methods. For broom, gorse, ragwort, and nodding thistle, biological control methods are presently being used. Examples of biological control are the psyllid and seed beetle for broom, pod moth for gorse, crown root weevil and gall fly for nodding thistle, leaf miner for old man's beard and flea beetle for ragwort.

Biological control methods do not generally show spectacular initial results, but rather build slowly as the biological control agent expands in the pest population. Control is cyclical and is typified by weakening of the population followed by a reduced increase of the pest as the biological control works, holding pest numbers at lower average levels.

The Council will assist investigation and introduction of biological methods for other pests where appropriate.

Rabbit Haemorrhagic Disease (RHD) is now well established in most parts of Otago that were previously seriously infested with rabbits. The use of this biological control agent is discussed in section 5.2.3.

7.5 Inspections

The Council will inspect properties required by Strategy rules to be free of certain pests, or below certain population levels.

Where an inspection reveals a small infestation and the inspecting officer has the necessary equipment at hand, if able to treat the site at negligible cost to the Council the officer will destroy the pests at no cost to the occupier. In the case of larger infestations, the occupier will be informed of their obligation to treat the site at their own cost. Advice on control techniques is available at no cost.

Where the Council is aware that Strategy rules have been breached, the land occupier will be advised that there is a need to undertake control. If the land occupier does not take action and there is a continuing breach of requirements, a notice of direction may be served on the occupier requiring the carrying out of works within a set period of time. If the land occupier still does not comply then the Council may arrange remedial works and recover costs (see Chapter 10 of this Strategy for more detail of regulatory procedures).

7.6 Other monitoring

The Council will maintain a register of complaints and record the instances of non-compliance with the Strategy rules.

The Council will inspect properties known to have pests, or after complaints are received, to assess compliance with the Strategy or to ensure adequate control programmes are being undertaken.

The Council may inspect plant nurseries and pet shops to ensure that pest plants or animals are not being propagated or offered for sale.

7.7 Roadside and rail corridor pest control

The Council will encourage the roading industry to develop an environmental code of practice to address the spreading of pest plant seed infested gravel across the region's road and rail corridors.

The Council promotes industry responsibility and an industry response for any other weed problems they may be causing or exacerbating.

7.8 Progressive containment area pest control

The Council will work with occupiers of Contorta Clearance Areas identified in Appendix 5 to ensure that trees at more exposed or at risk sites are cleared first.

The Council will work with forest companies to ensure that no spread of contorta seed occurs beyond the boundaries of Contorta Containment Areas. This may involve the removal of seeding age contorta along roadways and forest boundaries and at any site where seeding age contorta is not fully enclosed by a canopy of taller trees.

The Council will work with the Lake Wanaka Lagarosiphon Management Team and occupiers of high value areas and Lagarosiphon Containment Areas identified in Appendix 4 to ensure that lagarosiphon control work at high value areas is undertaken in a coordinated and effective manner.

The Act requires that this Strategy state the powers under which this Strategy may be implemented, as specified under Part VI of the Act. The Council will use the statutory powers shown in Table 1, below.

Many of these powers will be exercised on behalf of the Council by authorised persons. The Principal Officer (being the Chief Executive) of the Council will appoint authorised persons.

The Council has the power to enforce restrictions on the sale, propagation and distribution of pests in accordance with Sections 52 and 53 of the Act.

Authorised persons will have the power to request information from occupiers under Section 43 of the Act.

Inspections will be carried out by authorised persons using Sections 106, 109, 110, 113, 114, 115 and 118 of the Act.

Table 1: Statutory Powers Required Under the Biosecurity Act 1993

Administrative Powers	Section of the Act	Person Exercising the Powers
> Power to act on default	Section 128	The Management Agency or the Principal Officer
> Liens	Section 129	
> Declaration of a restricted place	Section 130(2)	The Management Agency (Delegated to the Principal Officer by separate resolution under the Local Government Act)
> Declaration of a controlled area	Section 131	
> Duration of place and area declarations	Section 133	
> Enforcement of area controls	Section 134	
> Options for cost recovery	Section 135	
> Failure to pay	Section 136	
> The appointment of authorised and accredited persons	Section 103(3) & (7)	The Principal Officer
> Delegation to authorised persons	Section 104(2)	
	Section 105	
> Power to require assistance	Section 106	Any Authorised Person
> Power of inspection	Sections 109, 110, 111 and 112	
> Power to record information	Section 113	
> General powers	Section 114 and 114A	
> Use of dogs and devices	Section 115	
> Power to seize evidence	Section 118	
> Power to seize abandoned goods	Section 119	
> Power to intercept baggage, etc	Section 120	
> Power to examine organisms	Section 121	
> Power to apply substance to a place	Section 121A	
> Power to give directions	Section 122	
> Power to vaccinate, etc	Section 123	
> Declaration of a restricted place	Section130	
> Duration of place and area declarations	Section 133	
> Enforcement of area controls	Section 134	

For successful pest management across regional boundaries, coordination and cooperation is required. Regular meetings with Environment Canterbury, Environment Southland and the West Coast Regional Council regarding pest management occur to ensure that cross-boundary and consistency issues are avoided, or promptly addressed.

Where an organism is identified as a pest by a neighbouring region's Pest Management Strategy, which is not declared a pest in Otago (or vice versa), the Council will ensure appropriate surveillance of that organism occurs in recognition of the possibility that it could become a pest in Otago or, where the pest is not present in the adjoining region, that it could spread out from Otago.

It is important to focus on the likely corridors for pests between the regions. For most pests these corridors are the lower altitude land forms and also the transport links. Areas to keep particular watch on are those containing State Highway 1 and 90 near Gore, State Highway 6 at Lindis and Kingston, roads through the Catlins, and the Waitaki plains. The ports of Dunedin and Oamaru are also corridors for the region. For the South Island, Cook Strait provides a barrier but also a corridor.

Environment Southland has raised concerns about Darwin's barberry *(Berberis darwinii)*, cotoneaster *(Cotoneaster glaucophyllus, C. simonsii, C. franchetti)* and Spanish heath *(Erica lusitanica)* spreading along the southern scenic highway in the Catlins area, Darwin's barberry in the Tapanui — Blue Mountains area via State Highway 90, and Buddleia *(Buddleia davidii)* from the Frankton — Remarkables Station area via State Highway 6. This Strategy has identified wallaby as a potential cross-boundary pest coming from Canterbury. If problems occur they will be addressed through a process of liaison with the affected neighbouring regional council, roading/ railway authorities and any affected land occupier.

This Strategy is not inconsistent with other Regional Pest Management Strategies. Although differing approaches have been used in neighbouring regions with some pests, this is not expected to cause an administrative problem between regions.

This Strategy is not inconsistent with any National Pest Management Strategy (see section 2.2.2).

This Strategy is not inconsistent with any regulation, or the Regional Policy Statement for Otago, or any regional plan for Otago.

10.1 Introduction

The main funding principle is that those who benefit from control, or those who contribute to the creating, continuing or worsening of a pest problem, should be required to pay for pest control.

10.1.1 The Otago Regional Council's responsibility

The anticipated cost of implementing this Strategy includes monitoring and enforcement, biological control work, information and publicity programmes and rook control work. The total annual cost is estimated at $800,000, using year 2006 dollar values. The source of funds is general rates and user charges.

Monitoring of pest populations, research and advice on control techniques that support this Strategy, are part of the Council's land sustainability and environmental programmes and will be paid for by general funds.

For any property inspected on complaint the Council will bear the cost of the inspection. If a complaint is malicious and becomes vexatious, the complainant may be charged the cost of inspection.

If a Notice of Direction is issued to a land occupier who is in breach of the Strategy's requirements, the occupier may be charged all costs incurred by the Council, including costs of the issue of a direction notice, all follow up costs and any works arranged by the Council.

10.1.2 The Crown's responsibility

The Council believes that the Crown is no different from any other land occupier and should therefore be bound by the obligations imposed by the Strategy on land occupiers. Section 87 of the Act expressly provides for the Governor General to approve the application of a Regional Pest Management Strategy to the Crown by Order in Council.

10.2 Exacerbators and beneficiaries

Table 2 below is an assessment of the groups of people who are contributing to the pest problem (exacerbators), and those who benefit from the control of pests (beneficiaries). The funding of the Strategy is based on this assessment of exacerbators and beneficiaries, in accordance with Section 77 of the Act.

Table 2: Pest Exacerbators and Beneficiaries

Pest	Exacerbators	Beneficiaries
Gorse and Broom	Land occupiers within the Gorse and Broom Free Area who do not control their gorse and broom contribute to the problem, as do land occupiers who do not control gorse and broom within 10 metres of a boundary with a neighbour who maintains their property free of gorse and broom.	Land occupiers and the wider community benefit by keeping the Gorse and Broom Free Area free of this invasive pest. Land occupiers outside of the Gorse and Broom Free Area who keep their properties free of gorse and broom are protected from any neighbour who does not.
Nassella tussock	Land occupiers who do not control nassella before it seeds contribute to the problem. Windblown seed can travel up to 10 km, potentially infesting new areas.	The individual land occupier benefits from control of nassella tussock as the plant will have direct impact on production values if allowed to fully establish and displace desirable species.
Spartina	Land occupiers of areas infested with spartina, that allow spread, are exacerbators.	The Otago community benefits by enhancing coastal biodiversity.
Old man's beard	Land occupiers who do not control old man's beard before it sets seed contribute to the problem. Windblown seed can travel up to 3 km, infesting new areas.	Land occupiers often benefit from having their land free of this invasive pest. The Otago community benefits by keeping Otago's bush areas and river margins free of this harmful pest.
Lagarosiphon	People contribute to the lagarosiphon problem by transferring plant fragments between water bodies on their boats and equipment or through discarding the contents of aquaria into water bodies. Damming has provided the conditions for further establishment and spread.	Recreational users of infested water bodies benefit from control at public access points. Actions taken to minimise the risk of spread to clean water bodies benefits the wider community as a whole, as ecological values and recreational values are being protected.
Contorta pine	Land occupiers who have seeding age *Pinus contorta*, and who let the seed spread to properties downwind are exacerbators, within the seed shadow of their plantation.	Land occupiers, particularly those in areas at threat of *Pinus contorta* infestation, benefit from the Strategy. The Otago community benefits by keeping Otago's biodiversity free of this pest.
Ragwort and Nodding thistle	Land occupiers who continue to let seed spread to adjoining clean properties are exacerbators.	The individual land occupier benefits from having a rule enabling action to be taken against a neighbour who does not control this pest.

Pest	Exacerbators	Beneficiaries
Bomarea	Land occupiers who do not control bomarea before it flowers and seeds can contribute to the problem.	The Otago community benefits by keeping Otago's bush areas free of this harmful biodiversity pest.
African feather grass; African love grass; Boneseed; Bur daisy; Cape ivy; Perennial nettle; Spiny broom White-edged nightshade.	Land occupiers of areas infested with these low incidence pests, that allow seed to escape are exacerbators.	The Otago community benefits by keeping Otago free of these pests. These plants are at very low incidence at present and costs of control are low. If they were allowed to establish, each one of these species has the potential to become a serious pest problem.
Rabbits and Hares	Land occupiers who do not keep rabbit and hare populations on their property below the level set can incur costs for others because of the migration of rabbits from their property onto their neighbours' properties.	Land occupiers benefit directly from control work carried out on their properties and indirectly from control work carried out on adjacent properties. The Strategy will help prevent costs imposed on land occupiers when a neighbour neglects pest control and the pests spread from that property.
Rooks	Any person shooting at the birds or their nests may scatter the population making control work more difficult. Growers of tall trees may provide habitat for rooks.	The grain cropping sector benefits most from the control of rooks, with pastoral and other agricultural sectors also benefiting to a lesser extent.
Wallabies	Any land occupier who allows wallabies to spread on to their land or any person who releases wallaby in Otago.	The Otago community benefits by keeping Otago free of a potentially harmful pest.

10.3 The rationale for the allocation of costs

The Council believes that, in most cases, land occupiers are both the primary beneficiaries and, at times, the primary exacerbators of the pest problem and the funding therefore reflects the combination of benefit and exacerbation.

10.3.1 Monitoring and surveillance

Although land occupiers are mostly expected to meet the cost of control, monitoring and surveillance costs are generally borne by the Council and funded from general funds. This reflects that there is often background benefit to the Otago community. This monitoring and surveillance funding is allocated from the Council's environmental and land sustainability programmes under the Resource Management Act 1991.

10.3.2 Gorse and broom

Individual land occupiers will pay for broom and gorse control in gorse free areas and broom free areas, in recognition that they are the main beneficiaries and also, at times, the exacerbators. Monitoring costs (including control work where that can be carried out at negligible cost to the Council) will be met from the general funds.

Elsewhere in Otago, individual land occupiers in breach of the boundary control rules for gorse or broom will pay for the boundary control on their property, reflecting they are the exacerbators, and can cause a problem to their neighbours. The costs of enforcement action where boundary control provisions are breached will also be charged to the party breaching the rule.

Any inspections related to compliance after issue of directions would be a direct user charge on an individual property basis as broom and gorse are easily recognisable and the methods of control are easily implemented.

10.3.3 Nassella tussock

Individual land occupiers will meet the cost of nassella control, reflecting they are both the beneficiaries and the exacerbators in many circumstances. Monitoring costs (including control work where that can be carried out at negligible cost to the Council) will be met from the general funds.

10.3.4 Spartina

The cost of controlling spartina will be met by the occupier, reflecting that they are the primary beneficiary and are often also the exacerbator. Monitoring costs (including control work where that can be carried out at negligible cost to the Council) will be met from the general funds.

10.3.5 Old man's beard

Individual land occupiers will meet the cost of old man's beard control, reflecting they are the exacerbators in most circumstances. The benefits of old man's beard control accrue to the occupier where the affected areas are private amenity plantings or bush areas. There is also a general public benefit from protecting the biodiversity of Otago's native forests. Any inspections related to compliance after issue of directions would be a direct user charge on an individual property basis. Monitoring costs (including control work where that can be carried out at negligible cost to the Council) will be met from the general funds.

10.3.6 Lagarosiphon

Occupiers will meet the cost of lagarosiphon control. When a person dams water they become the occupier and exacerbator of lagarosiphon infestation. The Council funds some of the monitoring of lagarosiphon in the region on behalf of regional beneficiaries.

10.3.7 Contorta pine

Individual land occupiers will meet the cost of *Pinus contorta* control, reflecting they are both the beneficiaries and the exacerbators in many circumstances. Because there are some benefits to the wider community of preventing this, monitoring costs (including control work where that can be carried out at negligible cost to the Council) will be met from the general funds.

10.3.8 Ragwort and nodding thistle

Individuals in breach of the rules will pay for ragwort or nodding thistle control on their property, reflecting they are the exacerbators, and are causing a problem to their neighbours. The costs of enforcement action where boundary provisions are breached will also be charged to the party breaching the rule.

10.3.9 Bomarea

Individual land occupiers will meet the cost of Bomarea control, reflecting they are the exacerbators in most circumstances. The benefits of Bomarea control accrue to the occupier where the affected areas are private bush areas. There is also a general public benefit from protecting the biodiversity of Otago's native forests. Monitoring costs (including control work where that can be carried out at negligible cost to the Council) will be met from the general funds.

10.3.10 Low incidence pest plants

The cost of controlling low incidence pest plants (African feather grass, African love grass, boneseed, bur daisy, cape ivy, perennial nettle, spiny broom, white-edged nightshade) will be met by the occupier in recognising they are the primary beneficiary and are often also the exacerbator. Monitoring costs (including control work where carried out at negligible cost to the Council) will be met from the general funds.

10.3.11 Rabbits and hares

Individual land occupiers will pay rabbit control costs for their own land by meeting the cost directly through doing the work themselves, or employing a contractor at their expense. This reflects the individual benefits from the control work. Monitoring costs will be met from general funds.

10.3.12 Rooks

Rook control will continue to be funded from general funds for the following reasons:

- No part of Otago is beyond the range of potential rook infestation and all constituent districts receive some level of control work;
- Administrative cost of rating beneficiaries differentially would be very high;
- Not all the agricultural sector benefits to the same degree; and
- Exacerbators can be from urban as well as rural areas.

10.3.13 Wallabies

Individual land occupiers would pay wallaby control costs for their own land directly through doing the work themselves, or employing a contractor at their expense. Wallaby surveillance (including control work where that can be carried out at negligible cost to the Council) will be funded out of the general rate, reflecting the general community benefit of keeping Otago free of this potential pest.

10.4 Unusual administrative problems or costs

The Council does not anticipate any unusual or unexpected administrative problems or costs in recovering costs from people who are required to pay, that are not provided for in this Strategy.

10.5 Compensation

No compensation shall be payable by the Council for any claims brought for alleged injurious affection or for any other matter as a result of the implementation of the Strategy.

The only exception to this shall be where any person owns domestic animals that are necessarily destroyed as a result of this Strategy, then any net proceeds available from the disposal of such organisms shall be payable to the owner.

11.1 Issue of direction

If an occupier does not take appropriate control action and there is a continuing breach of any rule under this Strategy, or other matters under Section 122, an authorised person may issue a notice directing the occupier under Section 122 of the Act. The notice shall include:

- a description of the land on which the works or measures are to be undertaken,
- the pest for which the works or measures are required,
- the works or measures to be undertaken to meet the occupier's obligations,
- the time within which the works or measures are to be undertaken,
- the action that will be taken by the Council if the occupier fails to comply with any part of the direction,
- the name of the authorised person issuing the direction, and
- the contact address and telephone and fax numbers of the authorised person issuing the direction.

11.2 Failure to comply

Where a notice of direction has not been complied with, the Council may, under Section 128 of the Act, undertake works or measures as are reasonable, necessary and appropriate for achieving the purposes of the direction.

11.3 Recovery of costs incurred

Section 128(3) of the Act empowers the Council to recover the costs and expenses reasonably incurred in carrying out works or taking action (such as the enforcement process, follow up and works), as a debt due from the occupier to whom the direction was given. The Council will make those costs a recoverable debt due from the occupier, except where, in the opinion of the Council, special circumstances may make it inappropriate to do so.

Section 129 of the Act makes all costs recoverable by the Council a charge against the land concerned and —

(a) subject to paragraph (b) the charge shall have a priority over all existing or later mortgages, charges and encumbrances over the land, however they may have been created (including mortgages, charges and encumbrances in favour of the Crown);

(b) if the land is or becomes subject to some other charge, created by an enactment other than Section 129 of the Act, the charges shall rank equally unless the other enactment provides that the other charge is to be deferred to the charge under Section 129.

11.4 Offences

Any person who, without reasonable excuse, fails to comply with a reasonable direction given to that person, or a reasonable requirement made of that person in accordance with and for the purposes of the Act and this Strategy by an authorised person or the assistant of an authorised person, commits an offence against Section 154 of the Act.

It is an offence to breach a Strategy rule without reasonable excuse. There are other criminal offences set out in Section 154 of the Act.

11.5 Extension and variation of directions

Where, on the representations of an occupier issued with a direction under Section 122 of the Act, an authorised person is satisfied that:

- steps have been taken to comply with the direction; or
- the occupier has been prevented by reasonable cause from completing the necessary work;
- the authorised person may extend the time specified for a further period, or vary the requirements of the direction as appropriate.

11.6 Cancellations of directions

Where an authorised person is satisfied that:

- works and measures have been undertaken to meet the occupier's obligations; or
- for some other reason it is no longer appropriate to enforce the direction;

the authorised person may cancel that direction.

12.1 Monitoring the effect of the Strategy

The Council will monitor the effect of the Strategy through:

- Maintaining a complaints/inquiry register.
- Ensuring monitoring undertaken by the Council meets the requirements set by the objectives and monitoring methods listed for each pest.
- Assessing changes in pest numbers, density, and distribution generally.

12.2 Monitoring the performance of the management agency

Monitoring of the Council's performance as Management Agency will be included as part of the Council's annual planning and reporting process.

12.3 Strategy review

A review may occur before five years have expired under the following circumstances:

- If the Council believes that the Strategy is failing to meet its objectives; or
- If circumstances have changed significantly since the Strategy's adoption.

In the Strategy, unless the context indicates otherwise:

the Act: Reference to "the Act" means the Biosecurity Act 1993.

Authorised person: A person appointed as an authorised person by the Principal Officer of the Otago Regional Council.

Bed: Means:

(a) In relation to any river, the space of land which the waters of the river cover at its fullest flow without overtopping its banks;

(b) In relation to any lake, except a lake controlled by artificial means, the space of land which the waters of the lake cover at its highest level without exceeding its margin;

(c) In relation to any lake controlled by artificial means, the space of land which the waters of the lake cover at its maximum permitted operating level; and

(d) In relation to the sea, the submarine areas covered by the internal waters and the territorial sea.

Beneficiary: The receiver of benefits accruing from the implementation of a pest management measure or the Strategy.

Biological control: The introduction and establishment of living organisms, which will prey on, or adversely affect a pest.

Biodiversity: The diversity, or variety, of life (plants, animals and micro-organisms) in a particular area or region. It encompasses species diversity, genetic diversity and habitat diversity.

Boundary Control: Where the rules require pests within a certain distance of a property boundary to be destroyed.

Consultation: The communication of a genuine invitation to give advice and a genuine consideration of that advice.

Containment area: An area of pest plant infestation managed differently from the rest of Otago.

the Council: The Otago Regional Council.

Crown: The New Zealand Government.

Ecosystem: A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit.

Environment: Environment includes —

(a) Ecosystems and their constituent parts, including people and their communities; and

(b) All natural and physical resources; and

(c) Amenity values; and

(d) The aesthetic, cultural, economic, and social conditions that affect or are affected by any matter referred to in paragraphs (a) to (c) of this definition.

Exacerbator: A person, who by their activities or inaction, contribute to the creation, continuance, or exacerbation of a pest plant management problem.

Feral: Wild or otherwise unmanaged.

Guilford Scale: A means of assessing wallaby infestation, this scale provides an index of wallaby density.

Indigenous plant or animal: A native plant or animal of New Zealand.

Kai Tahu: Descendants of Tahu, the tribe, tangata whenua of Otago.

Lag Phase: The period of relative inactivity between the introduction of a species, and the commencement of that species' exponential spread.

Mahika kai: Places where food is produced or procured.

Management Agency: Management agency means the Otago Regional Council, the agency given the task of implementing the Strategy.

Manawhenua: Those with rangatiratanga (chieftainship or authority) for a particular area of land or district.

Modified McLean Scale: A means of assessing rabbit infestation, this scale provides an index of rabbit density that is most useful when making comparisons between similar types of country, or recording changes from year to year in the same district. The scale was derived from two assessment techniques, one developed by Harry McLean of the Wairarapa Pest Destruction Board and the other by DSIR scientist John Gibb. This resulting scale, known as the Modified McLean Scale, uses visual sightings of rabbits, rabbit sign (e.g. burrowing and vegetation damage) and the abundance of fresh rabbit faecal pellets to grade the density of rabbits present. The scale is given in Appendix 1 of this Strategy.

Occupier:

(a) In relation to any place physically occupied by any person, means that person; and

(b) In relation to any other place, means the owner of the place; and

(c) In relation to any place, includes any agent, employee, or other person, acting or apparently acting in the general management of control of the place.

Person: Includes the Crown, a corporation sole, and a body of persons (whether corporate or unincorporate).

Pest: An organism specified as a pest in the Strategy.

Pest-led: A pest-led response involves targeting a specific pest species across an area (also see site-led).

Pest Management Strategy and Strategy: A strategy, approved under Part V of the Biosecurity Act 1993, for the management or eradication of a particular pest or pests.

Principal Officer: The principal administrative officer of a regional council; and

(a) In relation to a regional council, means the principal officer of that council; and

(b) In relation to a region, means the principal officer of the region's regional council; and includes an acting principal officer; and

(c) In relation to the Otago Regional Council, means the Chief Executive Officer; and includes an acting Chief Executive Officer.

Progressive Control: Pest control over a period of time, to achieve full eradication.

RHD: Rabbit Haemorrhagic Disease (Previously known as Rabbit Calicivirus Disease or RCD).

RPMS: Regional Pest Management Strategy.

Site-led: A site-led response involves targeting the particular weed problems at a given site.

Spread Phase: For any species, the period following the lag phase, during which rapid (exponential) spread of that species occurs.

Taonga: Treasure.

the Strategy: The Pest Management Strategy for Otago.

Territorial Authority: A city council or a district council.

Total control: The permanent removal or destruction of all individuals of a species from a particular site or area.

Unwanted organism: Any organism that is capable or potentially capable of causing unwanted harm to any of New Zealand's natural and physical resources, or human health. An unwanted organism must be listed as such by Biosecurity New Zealand. It is an offence under Sections 52 and 53 of the Biosecurity Act 1993 to communicate, release or otherwise spread any unwanted organism, or sell, propagate, breed or multiply an unwanted organism.

Urban Area: Land zoned for urban purposes within a district plan which is also used for an urban purpose or which is surrounded by land used for urban purposes.

Waahi tapu: Sacred places.

Water body: Means fresh water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area.

Wilding: In relation to conifers, means any tree established by natural means, or any tree that has not been purposefully planted.

Appendix 1: The Modified McLean Scale of Rabbit Infestation

Scale (Maximum Allowable Limit)	Rabbit Infestation
1	No sign seen. No rabbits seen.
2	Very infrequent sign present. Unlikely to see rabbits.
3	Sign infrequent with faecal pellet heaps more than 10 metres apart. Odd rabbits may be seen.
4	Sign frequent with some faecal pellet heaps more than 5 metres but less than 10 metres apart. Groups of rabbits may be seen.
5	Sign very frequent with faecal pellet heaps less than 5 metres apart in pockets. Rabbits spreading.
6	Sign very frequent with faecal pellet heaps often less than 5 metres apart over the whole area. Rabbits may be seen over the whole area.
7	Sign very frequent with 2–3 faecal pellet heaps often less than 5 metres apart over the whole area. Rabbits may be seen in large numbers over the whole area.
8	Sign very frequent with 3 or more faecal pellet heaps often less than 5 metres apart over the whole area. Rabbits likely to be seen in large numbers over the whole area.

This scale was derived from two assessment techniques; one was developed by Harry McLean of the Wairarapa Pest Destruction Board, and the other by DSIR scientist John Gibb. The scale provides an index of rabbit density that is most useful when making comparisons between similar types of country, or recording changes from year to year in the same district.

Appendix 2: Section 72(a) Analysis of Benefits and Costs of the Strategy; & Section 76(1)(g) Statement of Alternative Measures for Achieving Objectives

Gorse and Broom

Gorse and broom are so widespread they are past the stage of being able to be completely controlled in coastal parts of Otago. In these areas, despite any impact on production or biodiversity values, the cost of region-wide control would outweigh the benefits. Requiring total control of gorse and broom throughout Otago was therefore not considered to be a reasonable alternative measure.

There are however, very large areas in Central Otago that are predominantly gorse and broom free. In these areas it is considered that the minimal costs of maintaining these areas free of gorse and broom outweigh the potential cost to production and indigenous vegetation values of allowing the plants to spread. A regionally co-ordinated response is justified in this case because voluntary individual action would not keep Central Otago gorse and broom free. It is considered that non-regulatory measures would not achieve the Strategy's objective of maintaining these areas free of gorse and broom.

In rural coastal Otago, gorse and broom have the potential to affect adjacent properties not infested by the plant. The benefits of such control accrue primarily to the land occupier who undertakes the clearance work. However, the Council recognises the need to be able to take measures to prevent spread from infested properties to neighbouring properties that are clear, where conflicts cannot be resolved between neighbours. The benefits of the Council enforcing such boundary control requirements, in rural areas, are considered to outweigh the costs.

An alternative would be to use non-regulatory methods to promote and encourage voluntary boundary control work by individual occupiers. However, the Council consider this would be insufficient to ensure the Strategy objectives are met.

Nassella Tussock

The low incidence and isolated nature of nassella tussock sites in Otago means it can be controlled sufficiently to contain the spread of the plant at reasonable cost. The high risk of nassella tussock taking over Otago's productive and conservation grasslands justifies the cost of control.

Due to technical difficulties in plant identification, a regionally coordinated and technically competent approach to control is required. A voluntary or non-regulatory response by individual occupiers would not achieve the Strategy's objective.

Spartina

Spartina is now at significantly lower levels than five years ago, due to a coordinated control effort. Control costs for the coming years are likely to be small compared to the significant benefits gained from having several coastal estuarine areas free from this pest plant. The Council considers that the benefits of preventing this pest becoming widespread exceed the cost of control work. A regionally coordinated response is justified because voluntary individual action or non-regulatory measures would not achieve the Strategy objectives.

Old Man's Beard and Bomarea

Old man's beard and bomarea have the potential to invade and smother indigenous forest, seriously affecting biodiversity values. They may also pose a threat to exotic forestry plantations and amenity plantings.

There is a possibility of eliminating bomarea entirely and confining old man's beard to relatively small areas of denser infestation, if regionally coordinated control continues. The Council consider that the benefits of preventing these pests from becoming widespread exceed the cost of control work. Voluntary action by individual occupiers or non-regulatory measures would not achieve the Strategy's objectives.

Lagarosiphon

The cost of preventing lagarosiphon from invading areas it has not yet infested is far outweighed by the benefits of keeping Lake Wakatipu and other areas free of lagarosiphon. The need to prevent the spread of lagarosiphon to lakes of national significance such as Lake Wakatipu may involve an integrated education programme and localised control work around boat ramps and inspection of ponds and aquaria as appropriate. This involves regional coordination. The benefits of controlling lagarosiphon in high value areas are considered to exceed the costs due to the value these areas have for public amenity.

Voluntary action by individual occupiers or non-regulatory measures are considered insufficient to achieve the Strategy's objectives. Requiring total control throughout Otago without exempting the lagarosiphon containment area, was not considered to be a reasonable alternative control measure because the cost burden on the occupier would be too great.

Contorta Pine

This pest is generally considered the worst of the wilding conifer species and has the potential to invade indigenous grassland and alpine habitat, affecting biodiversity values. There is a possibility of eliminating this pest from Otago over the medium term before infestation becomes a serious problem. The Council consider that the benefits of preventing this pest becoming widespread exceed the cost of the Strategy. A regionally coordinated response is justified because voluntary individual action would not achieve the Strategy objectives.

Requiring total control throughout Otago without exempting the Contorta Containment Areas is not considered to be a reasonable alternative measure because the cost burden on those with serious contorta infestations in these containment areas would be too great.

Ragwort and Nodding Thistle

Ragwort and Nodding thistle in rural Otago have the potential to affect adjacent properties not already infested by these pests. The benefits of control accrue primarily to the land occupier who undertakes the clearance work. However, the Council recognises the need to be able to take measures to prevent these pests spreading from infested properties to neighbouring clean properties, where conflicts cannot be resolved between neighbours. The benefits of the Council enforcing such boundary control requirements in rural areas is considered to outweigh the costs.

An alternative would be to use non-regulatory methods to promote and encourage voluntary boundary control work by individual occupiers. However, the Council consider this would be insufficient to ensure the Strategy objectives are met.

Low Incidence Pest Plants

The annual cost of controlling each of these plants is very low. The benefits of preventing widespread infestations of these pests far outweigh the costs of the Strategy. A regionally coordinated response is justified because voluntary action would not achieve the Strategy objectives.

An alternative would be to use non-regulatory methods to promote and encourage voluntary control work by individual occupiers. However, the Council consider this would be insufficient to ensure the Strategy objectives are met.

Rabbits and Hares

A report entitled "Evaluation of Options for Regional Pest Management Strategies" by Brown Copeland & Co Ltd (1994) found the net financial outcome from regional intervention for rabbits and hares in Otago was positive. If the value of the unquantified factors (prevention of land degradation and spillover) were added to the values quantified in this report then a Strategy would be even more clearly justified.

The lower cost of control now that RHD has established in Otago, high value land uses within low and negligible rabbit prone areas, spillover from islands of high proneness within these areas and the potential for rabbit population levels to escalate rapidly in a good breeding season justify the Strategy applying to the less rabbit prone parts of Otago also.

A regionally coordinated response is justified because voluntary action would not achieve the Strategy objectives. The use of non-regulatory methods to promote and encourage voluntary control work would not meet the Strategy objectives.

There were no other reasonable alternative measures identified that would meet the Strategy's objective.

Rooks

The cost of controlling rooks is $50,000 for the current year and the annual cost is expected to progressively decrease over subsequent years as the rook population is reduced. The benefits of controlling rooks include a reduced risk of crop and pasture destruction by large flocks of these birds. The Council is of the opinion that the benefits of controlling Otago's rooks outweigh the costs.

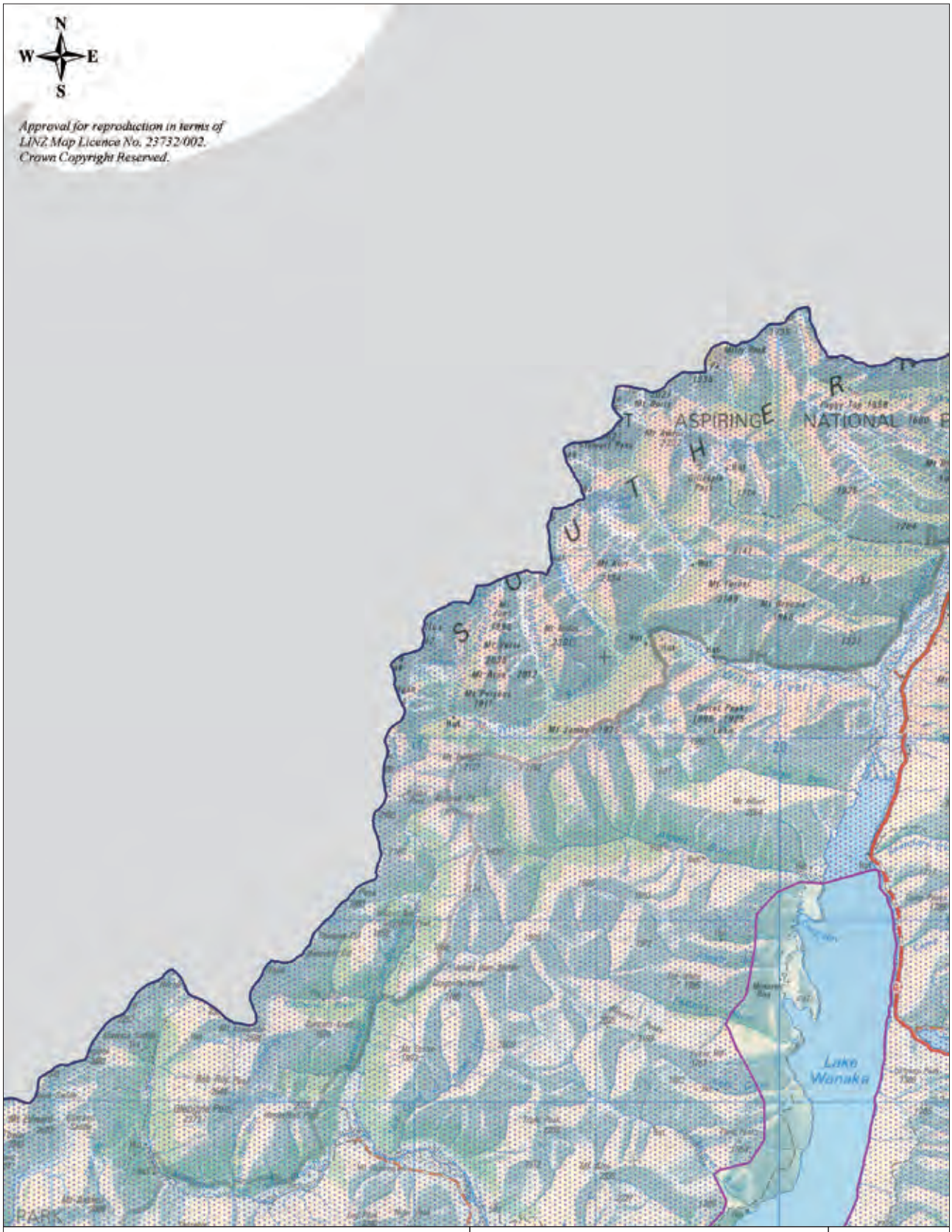
A regionally coordinated response is justified because voluntary action could not achieve the Strategy objectives because expert technical staff are needed for rook control operations. There were no reasonable alternative measures that would meet the Strategy's objective.

Wallabies

The cost of wallaby control in Otago is very low because the only action required is ensuring wallabies do not spread, or are not introduced, into the region. The benefits of keeping Otago free of a wallaby population far outweigh this minor cost. Relying on voluntary individual action would not achieve the Strategy objective.

There were no other reasonable alternative measures identified that would meet the Strategy's objective.

Appendix 3: Detail of Gorse and Broom Free Areas — Maps A1–A11



Gorse and Broom Free Areas Map A2

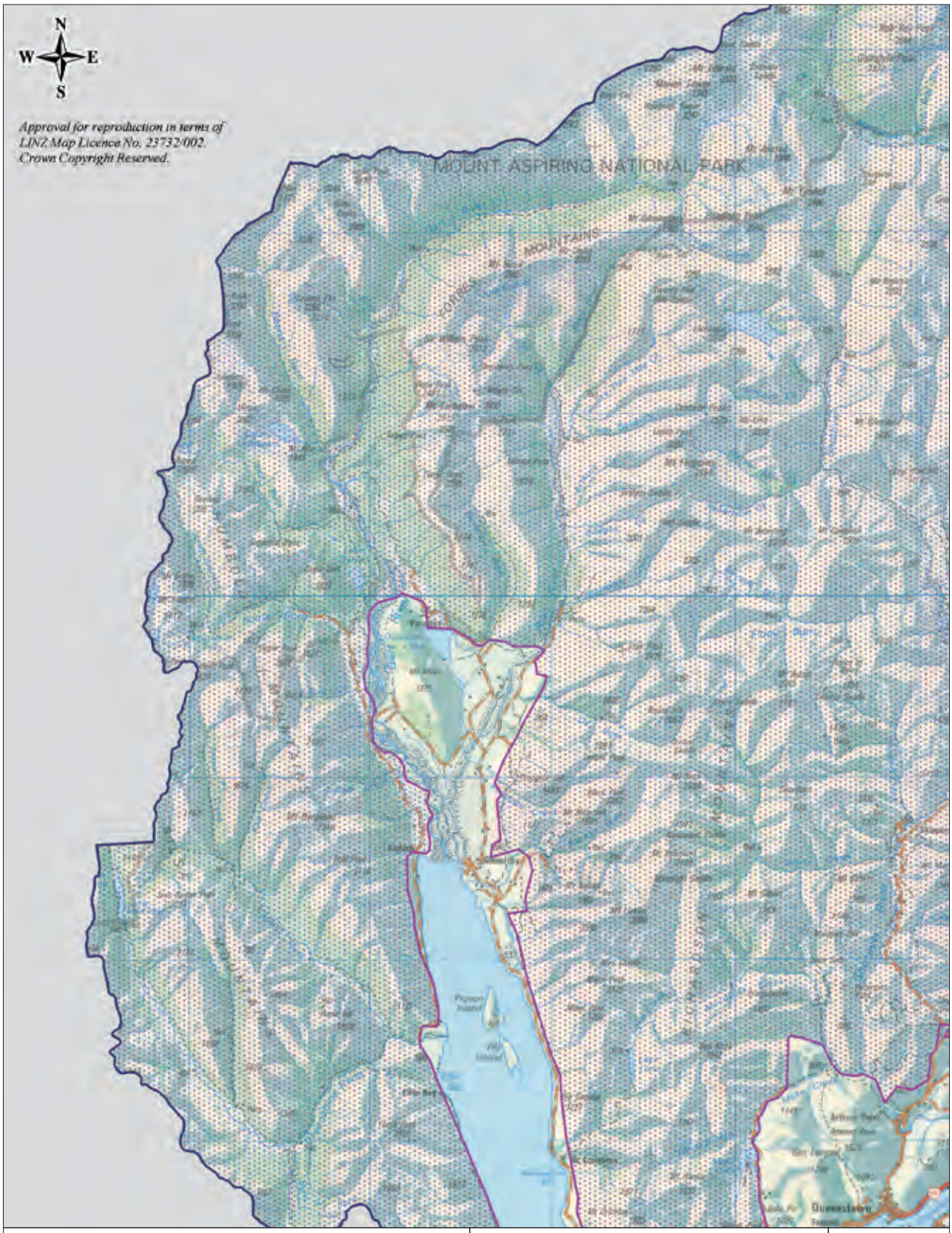
0 5 10
kilometres

Key

Gorse and Broom Free Area

Regional Boundary

Key Map



Gorse and Broom Free Areas Map A3

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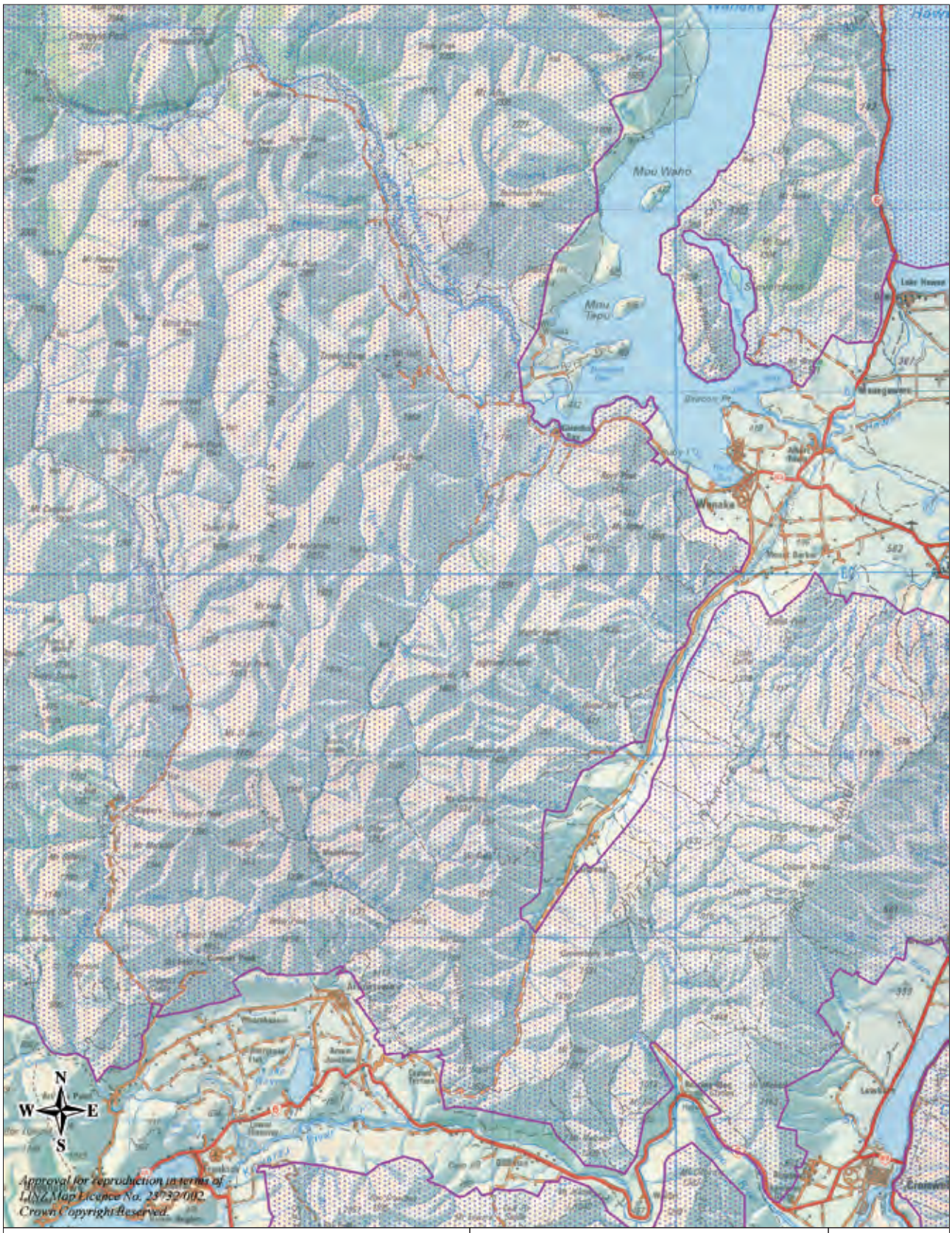
kilometres

Key

- Gorse and Broom Free Area
- Regional Boundary

Key Map



Gorse and Broom Free Areas
Map A4

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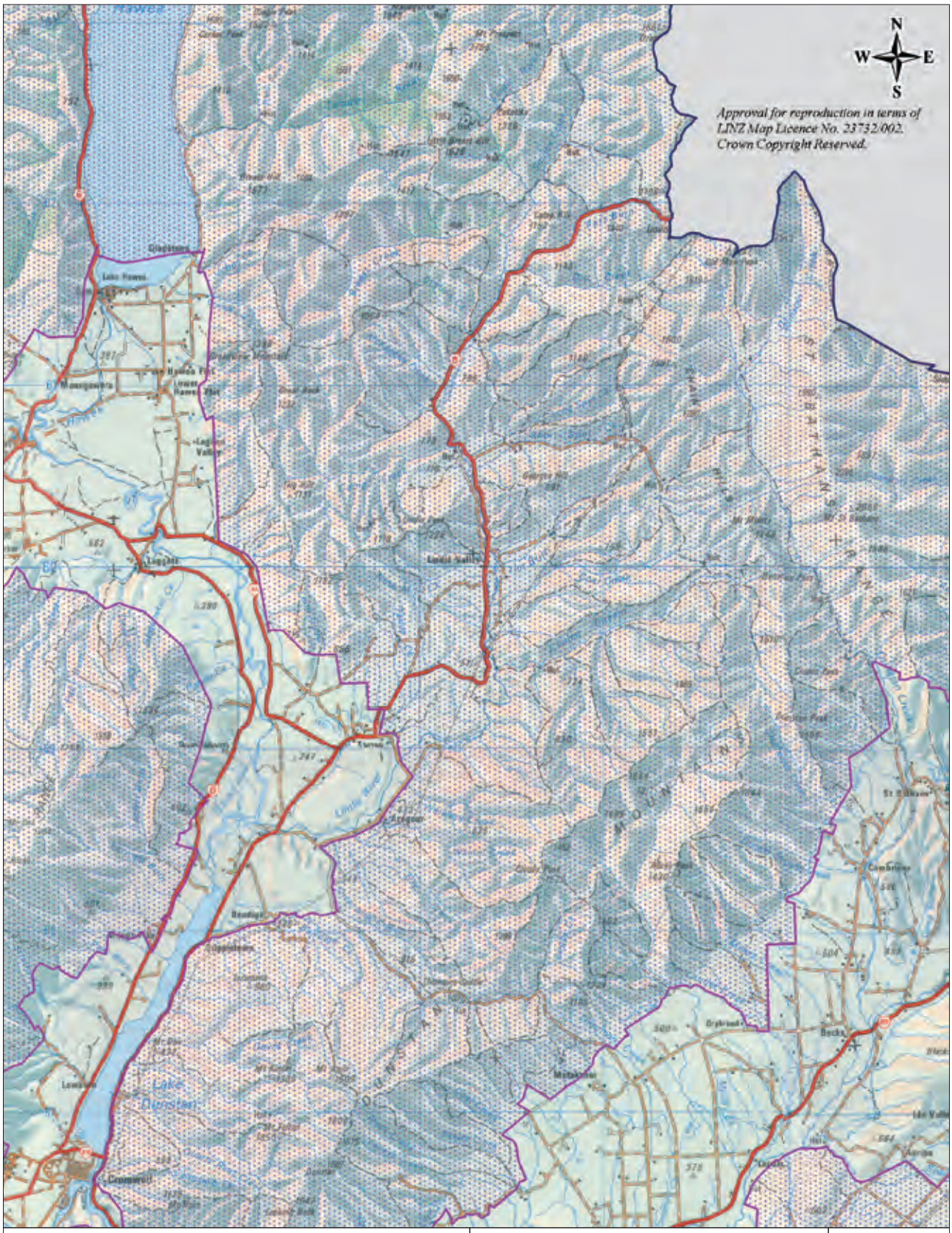
Key

Gorse and Broom Free Area

Regional Boundary

Key Map



Gorse and Broom Free Areas
Map A5

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kilometres

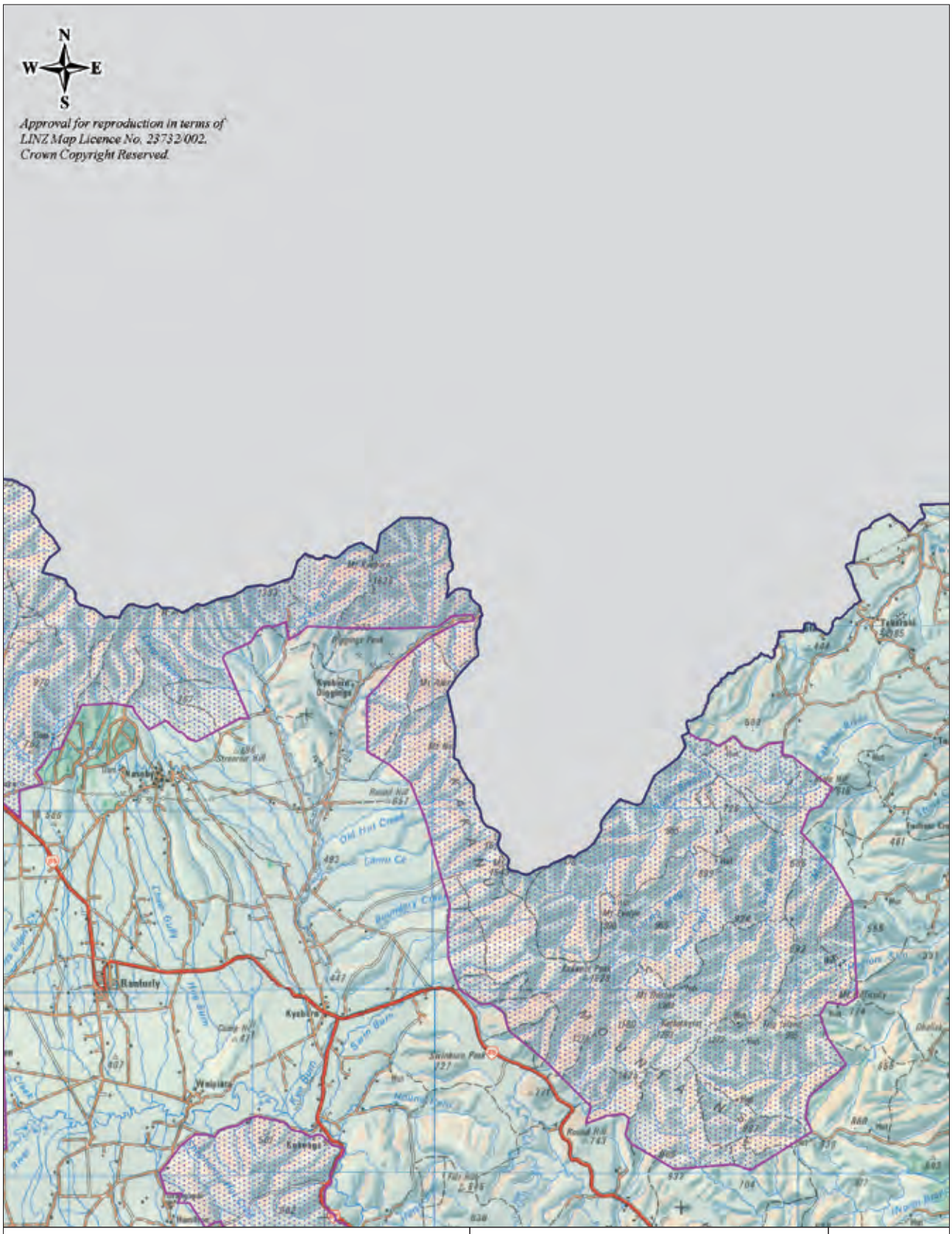
Key

Gorse and Broom Free Area

Regional Boundary

Key Map

Gorse and Broom Free Areas
Map A6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Crown Copyright Reserved.
Gorse and Broom Free Areas
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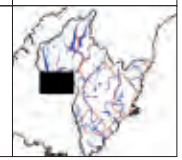
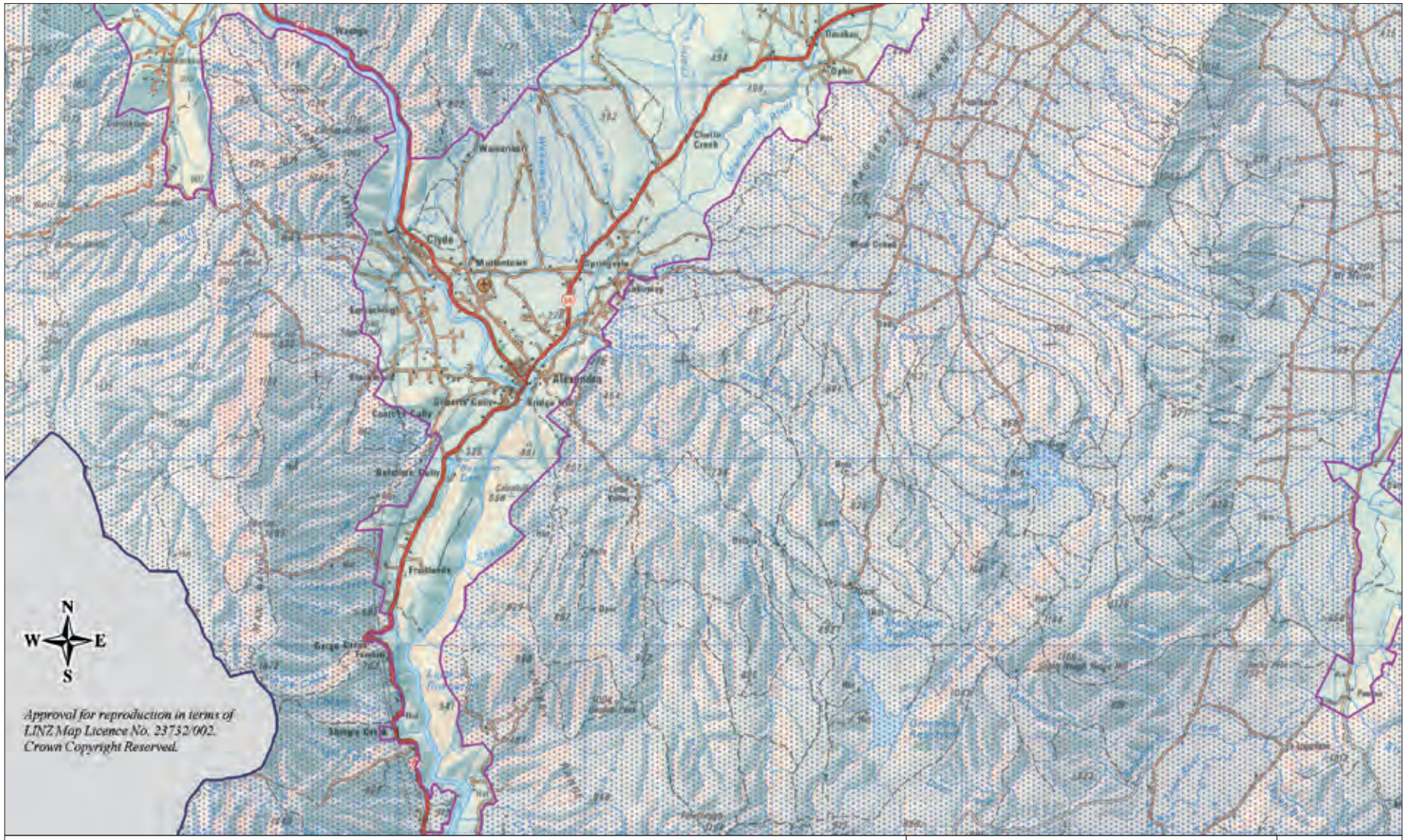
Gorse and Broom Free Area

Regional Boundary

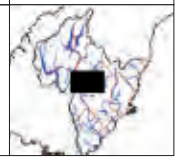
Key Map

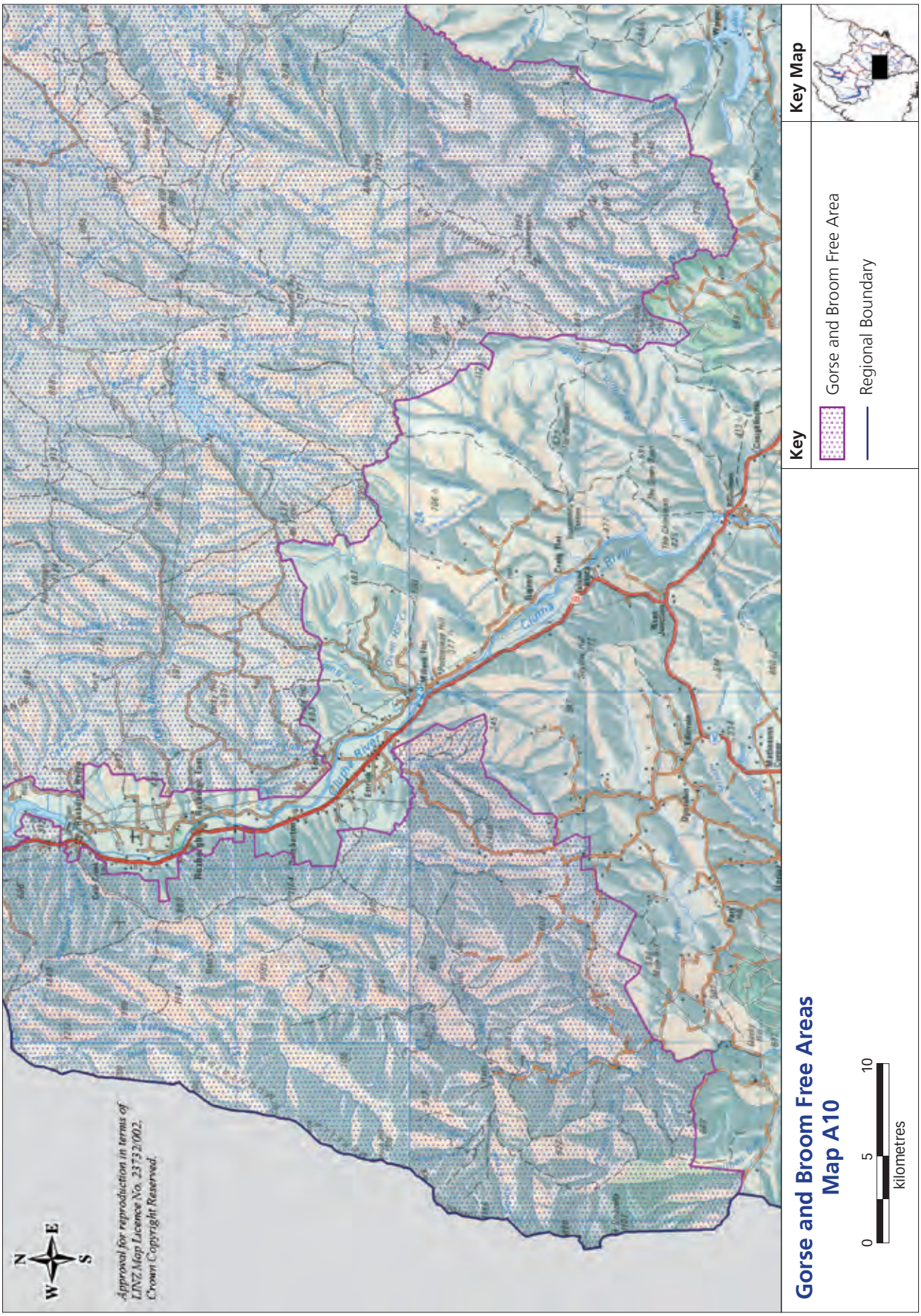




Gorse and Broom Free Areas
Map A9

0 5 10
kilometres

Key	Key Map
Gorse and Broom Free Area	
Regional Boundary	


Gorse and Broom Free Areas
Map A10
Key
Gorse and Broom Free Area
Regional Boundary
Key Map
0
5
10
kilometres
N
E
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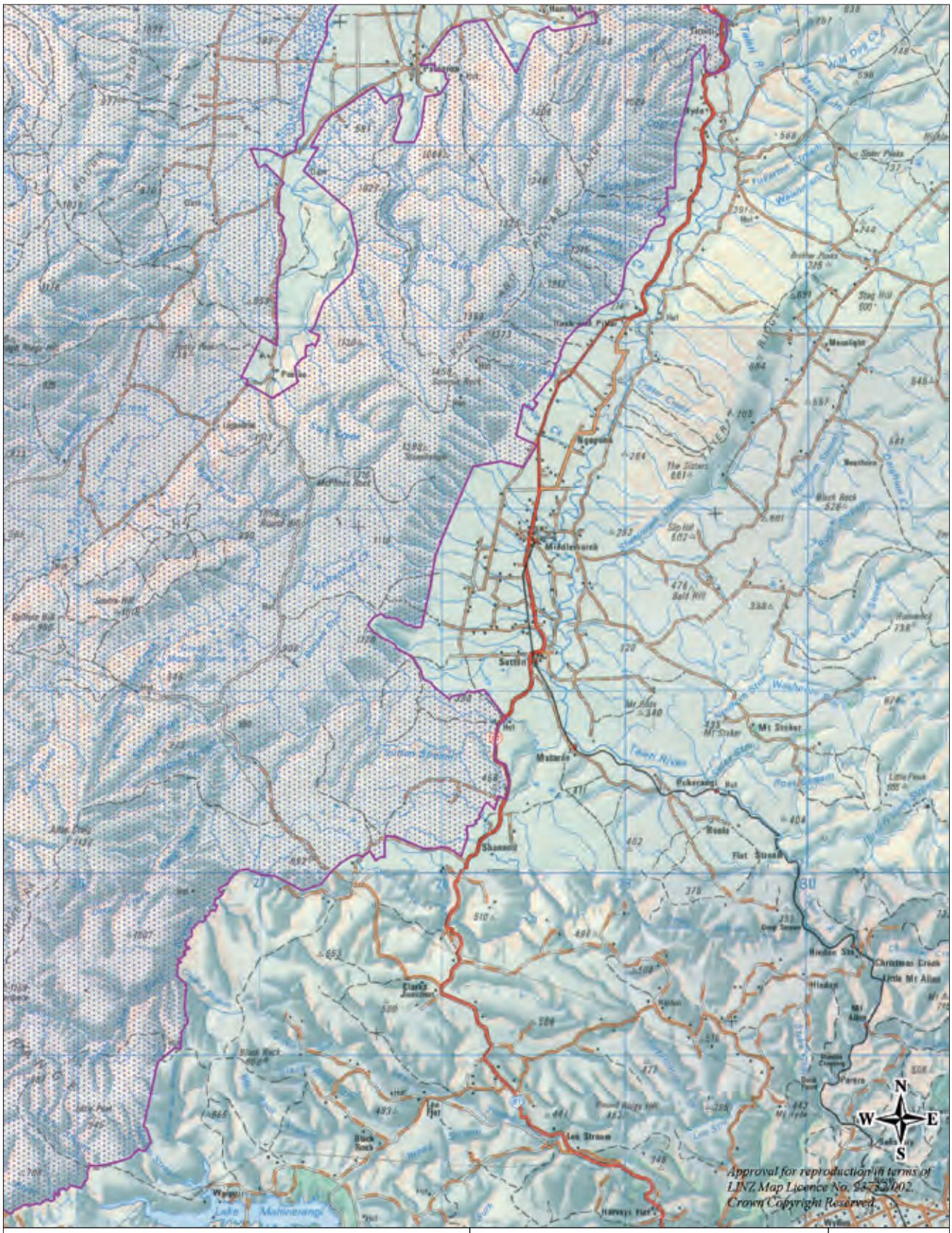


Gorse and Broom Free Areas
Map A11

0 5 10
kilometres

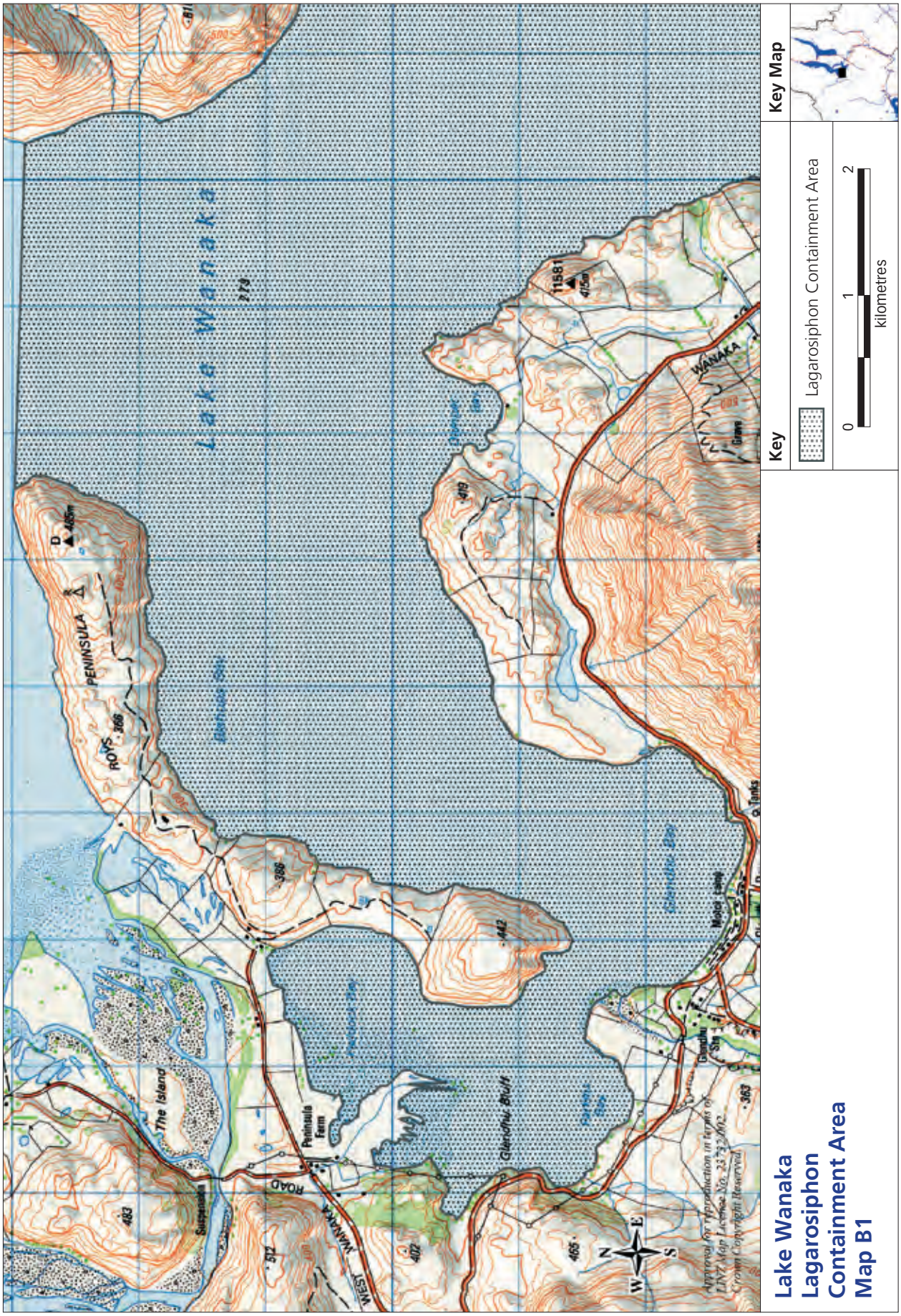
Key

Gorse and Broom Free Area

Regional Boundary

Key Map

Appendix 4: Lake Wanaka Lagarosiphon Containment Area — Maps B1–B3



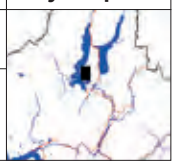
Lake Wanaka Lagarosiphon Containment Area Map B2

Key

Lagarosiphon Containment Area

0 1 2
kilometres

Key Map



Lake Wanaka Lagarosiphon Containment Area Map B3

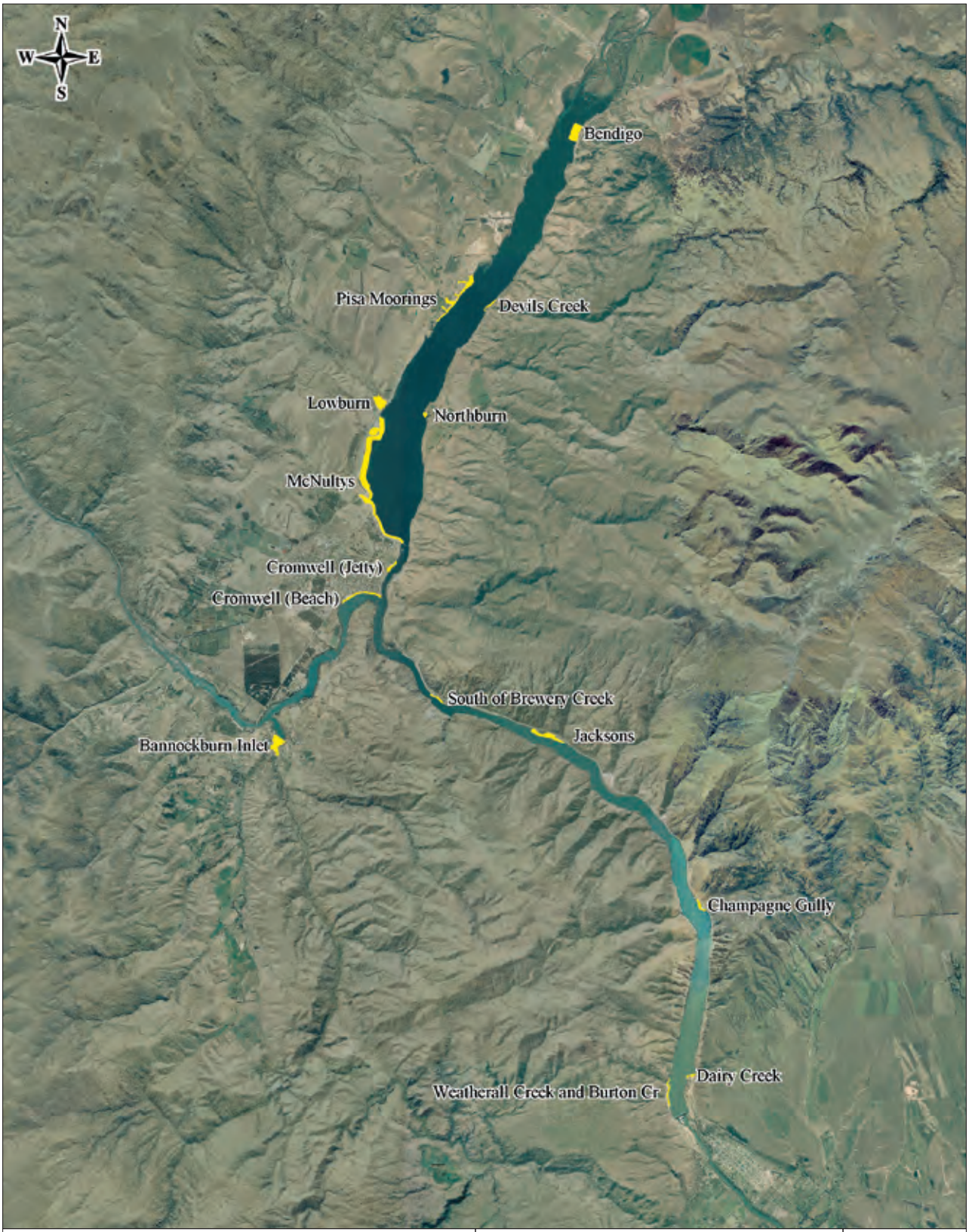
Key

Lagarosiphon Containment Area

0 1 2
kilometres

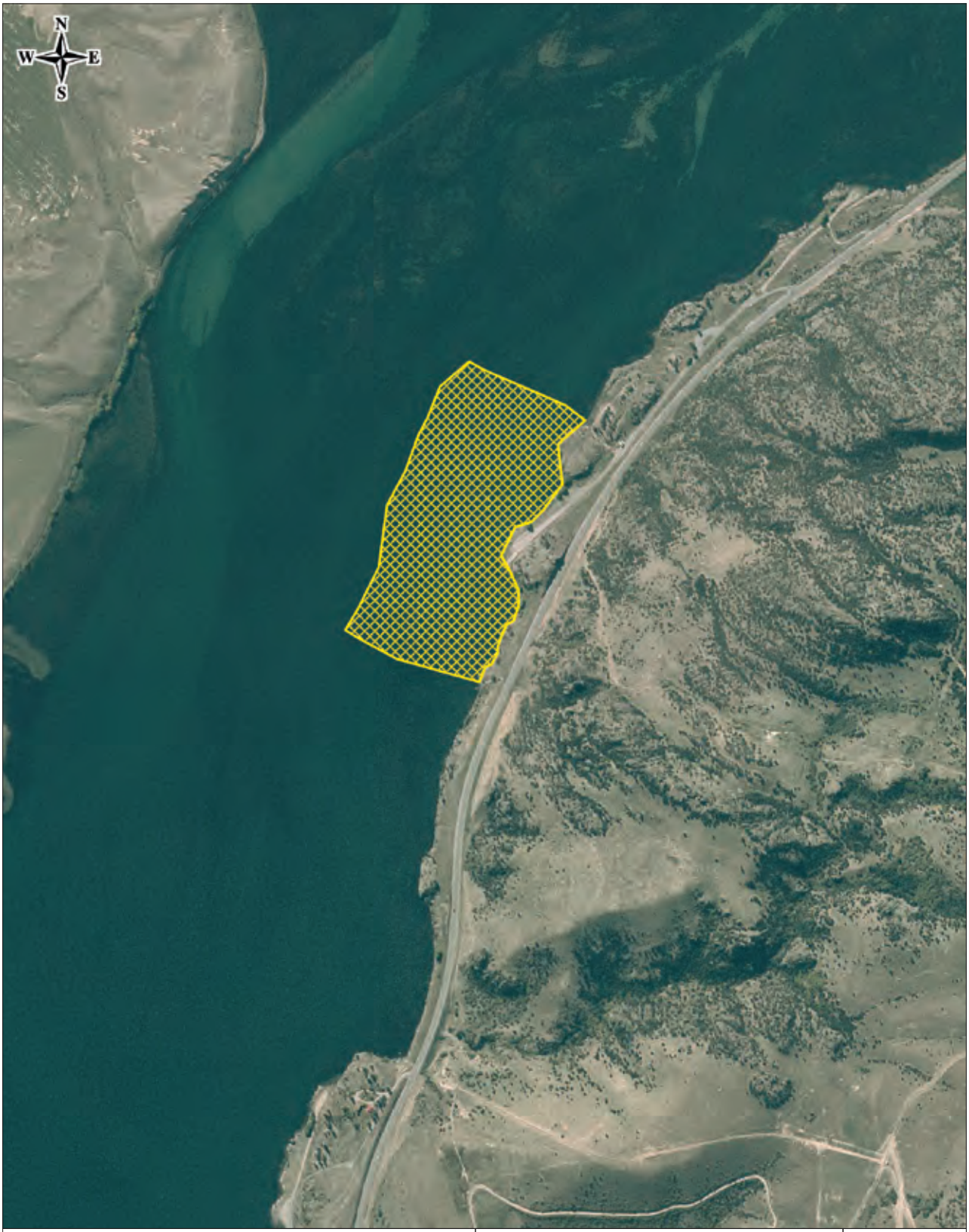
Key Map

Appendix 4: Lake Dunstan Lagarosiphon High Value Areas — Maps B4–B16



Lake Dunstan Lagarosiphon High Value Areas Overview Map

Key	Key Map
Lagarosiphon High Value Area	



Lake Dunstan Lagarosiphon High Value Areas Map B4 - Bendigo

Key

Lagarosiphon High Value Area

0 150 300

metres

Key Map

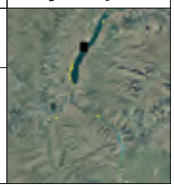
Lake Dunstan
Lagarosiphon
High Value Areas
Map B5 - Pisa Moorings

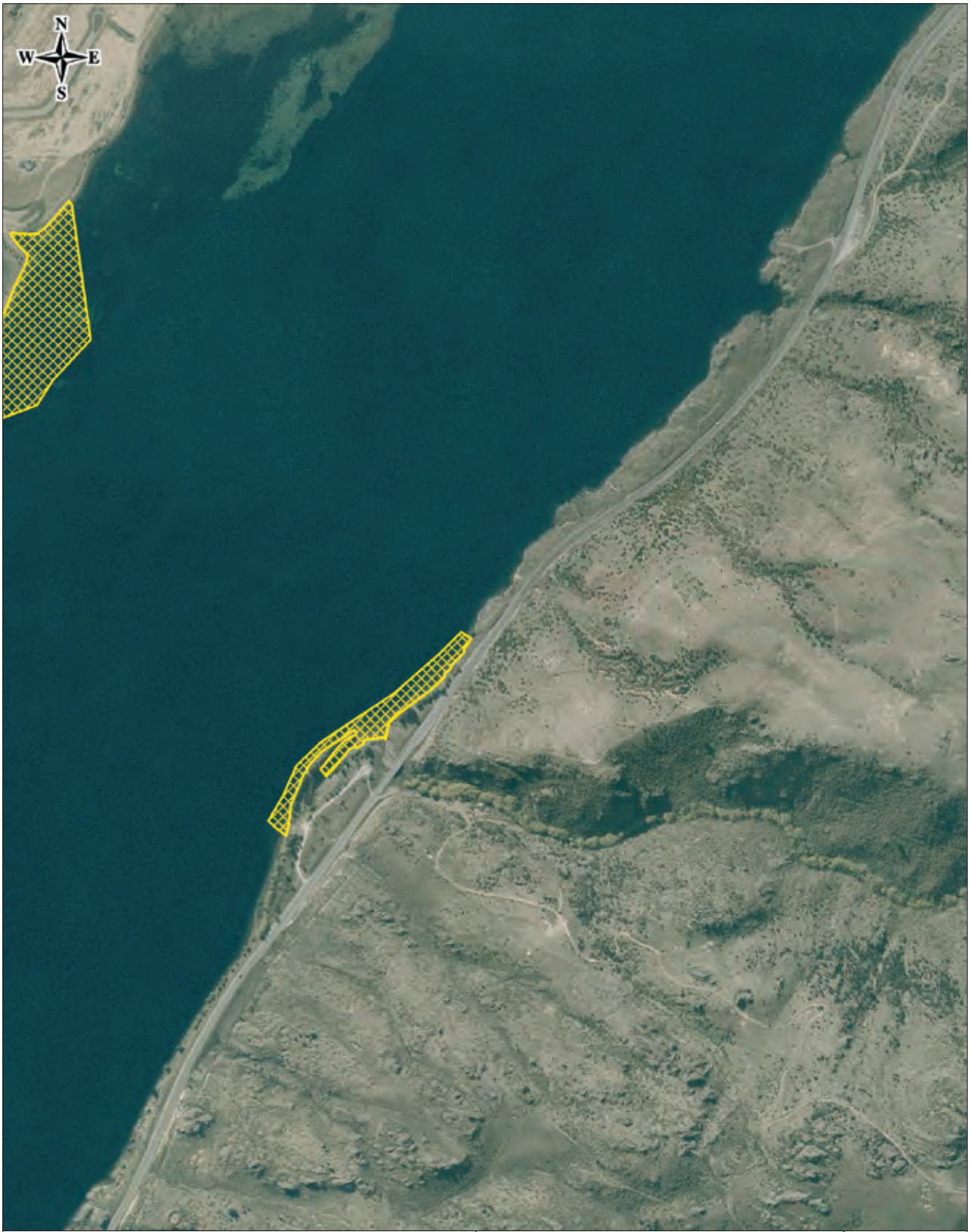
Key

Lagarosiphon High Value Area

0 150 300
metres

Key Map





Lake Dunstan
Lagarosiphon
High Value Areas
Map B6 - Devils Creek

Key

Lagarosiphon High Value Area

0 150 300
metres

Key Map

Lake Dunstan Lagarosiphon High Value Areas Map B7 - Northburn

Key

Lagarosiphon High Value Area

0 150 300

metres

Key Map

Lake Dunstan
Lagarosiphon
High Value Areas
Map B8 - Lowburn and McNultys

Key	Key Map
Lagarosiphon High Value Area	
0 150 300 metres	

Lake Dunstan Lagarosiphon High Value Areas Map B9 - McNultys

Key

Lagarosiphon High Value Area

0 150 300
metres

Key Map

Lake Dunstan Lagarosiphon High Value Areas Map B10 - McNultys and Cromwell (Jetty)

Key

Lagarosiphon High Value Area

0 150 300

metres

Key Map

Lake Dunstan
Lagarosiphon
High Value Areas
Map B11 - Cromwell (Beach)

Key

Lagarosiphon High Value Area

0 150 300
metres

Key Map

Lake Dunstan Lagarosiphon High Value Areas Map B12 - Bannockburn Inlet

Key

Lagarosiphon High Value Area

0 150 300

metres

Key Map

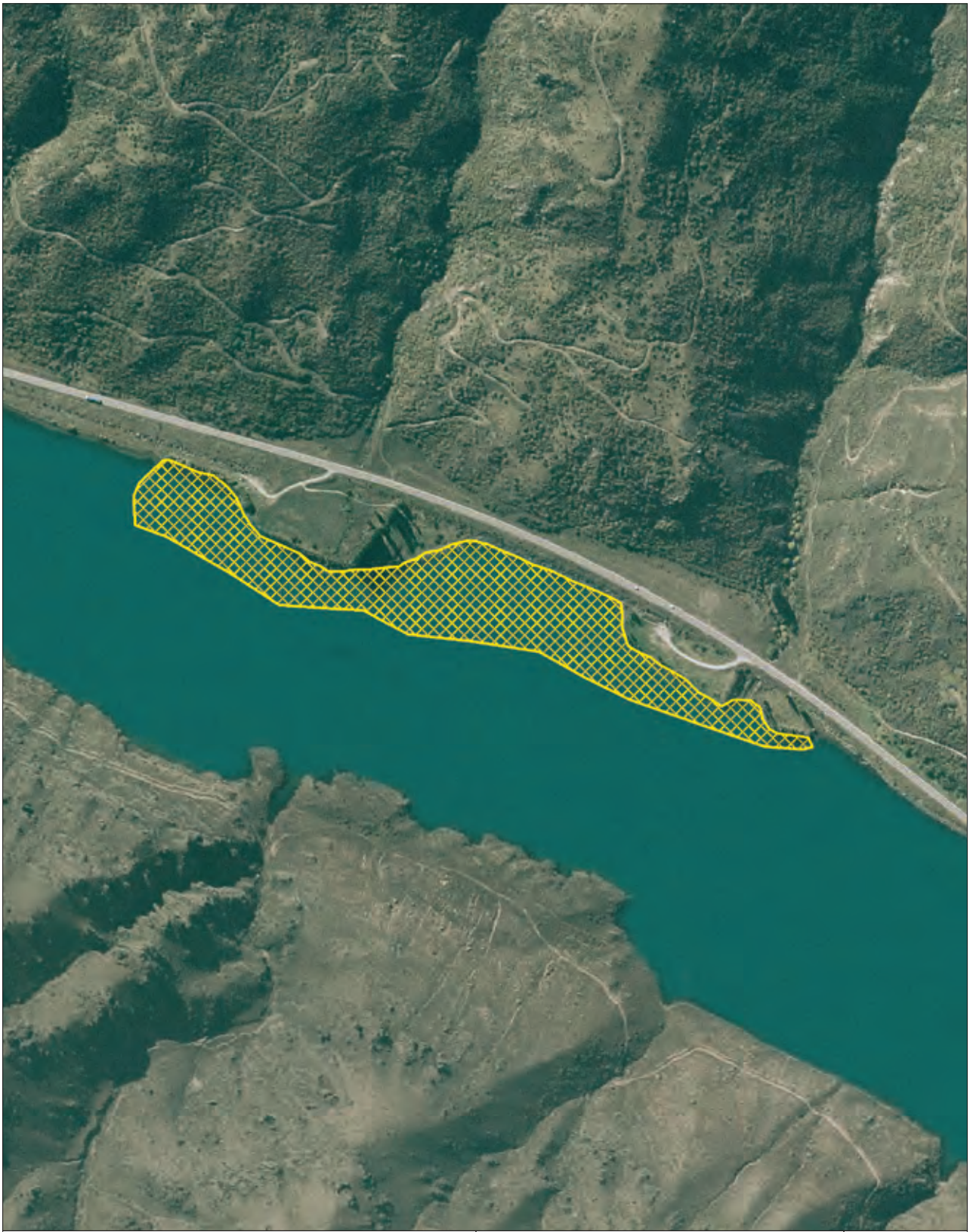
Lake Dunstan
Lagarosiphon
High Value Areas
Map B13 - South of Brewery Creek

Key

Lagarosiphon High Value Area

0 150 300
metres

Key Map



Lake Dunstan
Lagarosiphon
High Value Areas
Map B14 - Jacksons

Key

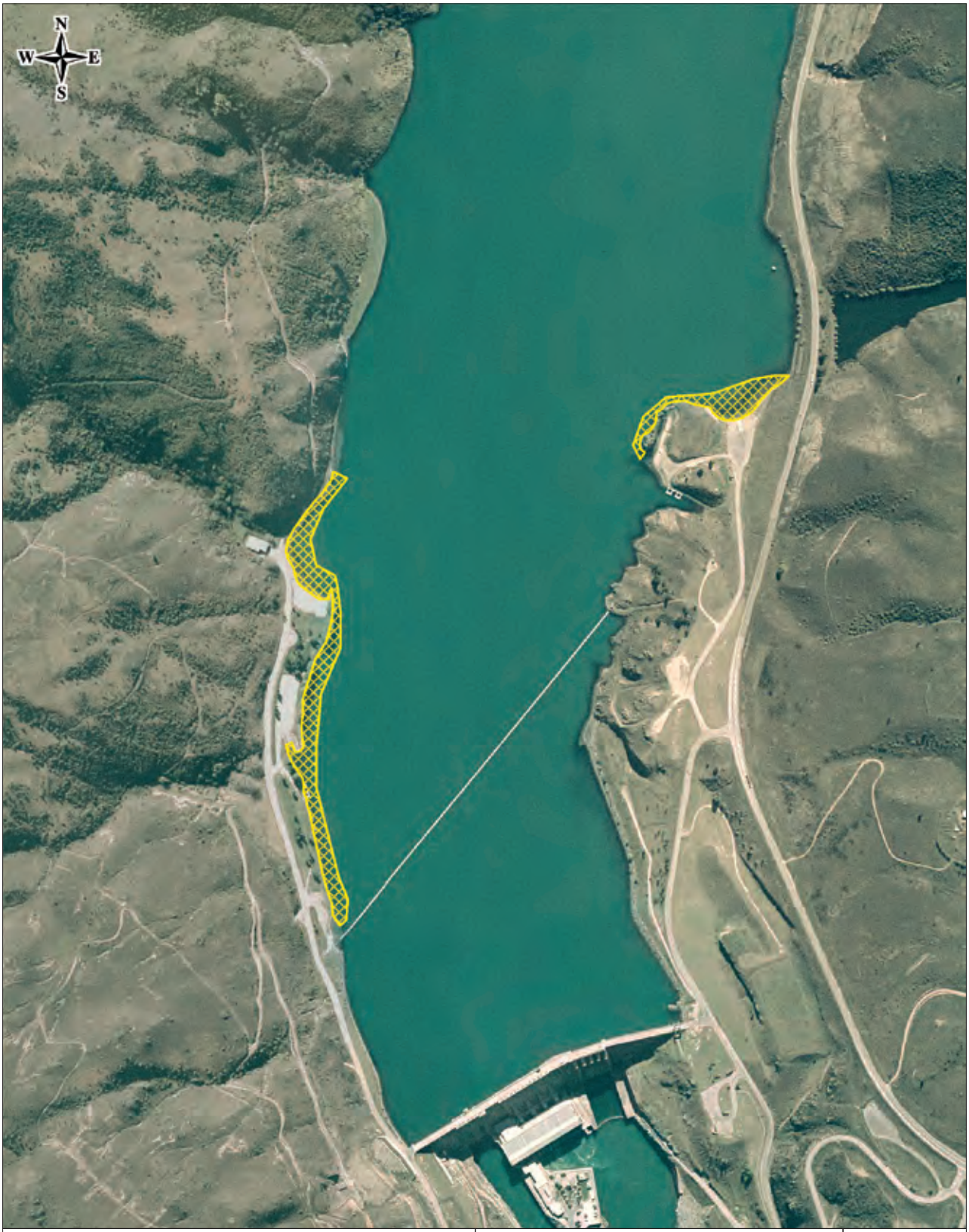
Lagarosiphon High Value Area

0 150 300
metres

Key Map

Lake Dunstan
Lagarosiphon
High Value Areas
Map B15 - Champagne Gully

Key	Key Map
Lagarosiphon High Value Area	
0 150 300 metres	



Lake Dunstan Lagarosiphon High Value Areas Map B16 - Weatherall Creek and Burton Creek, and Dairy Creek

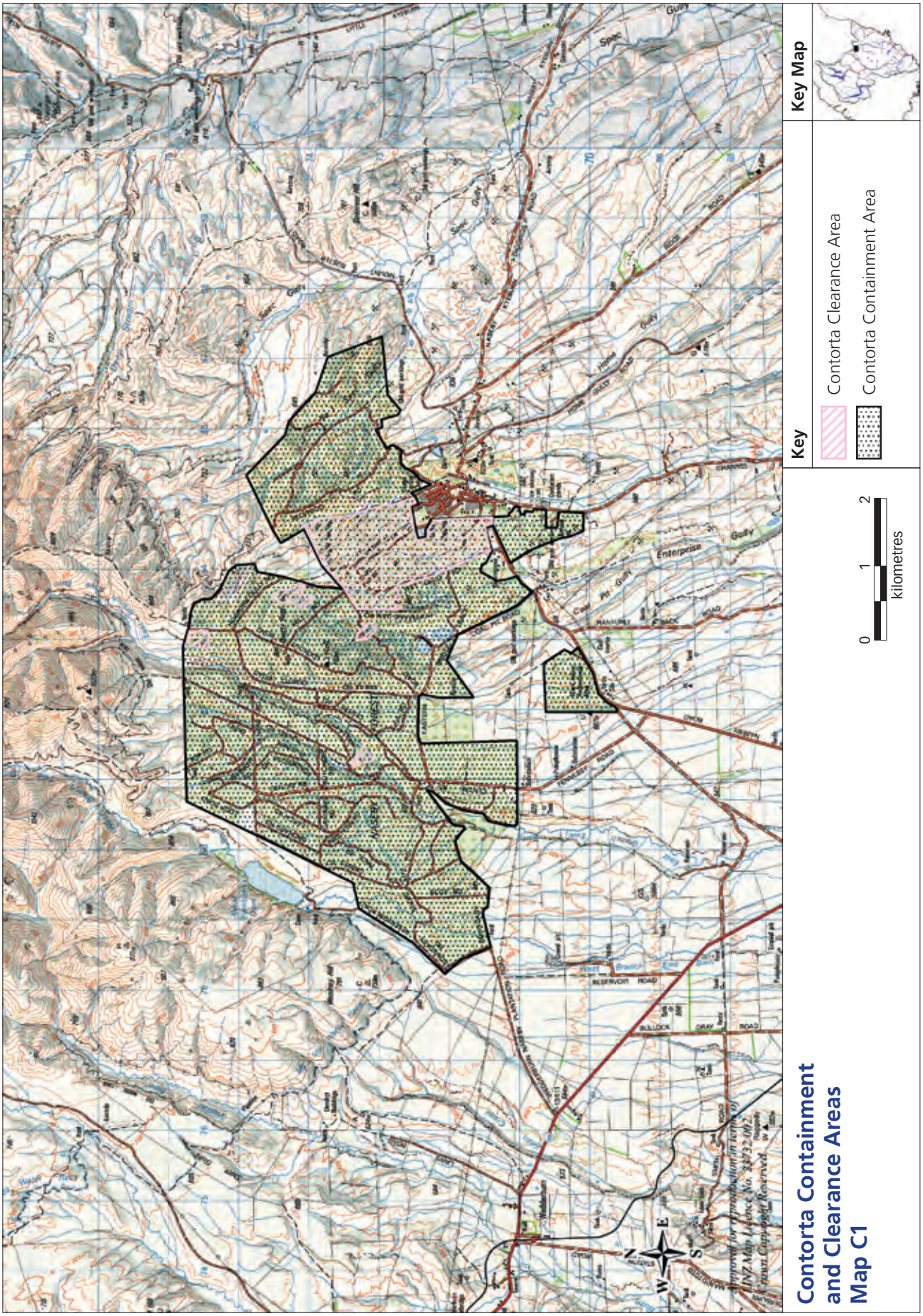
Key

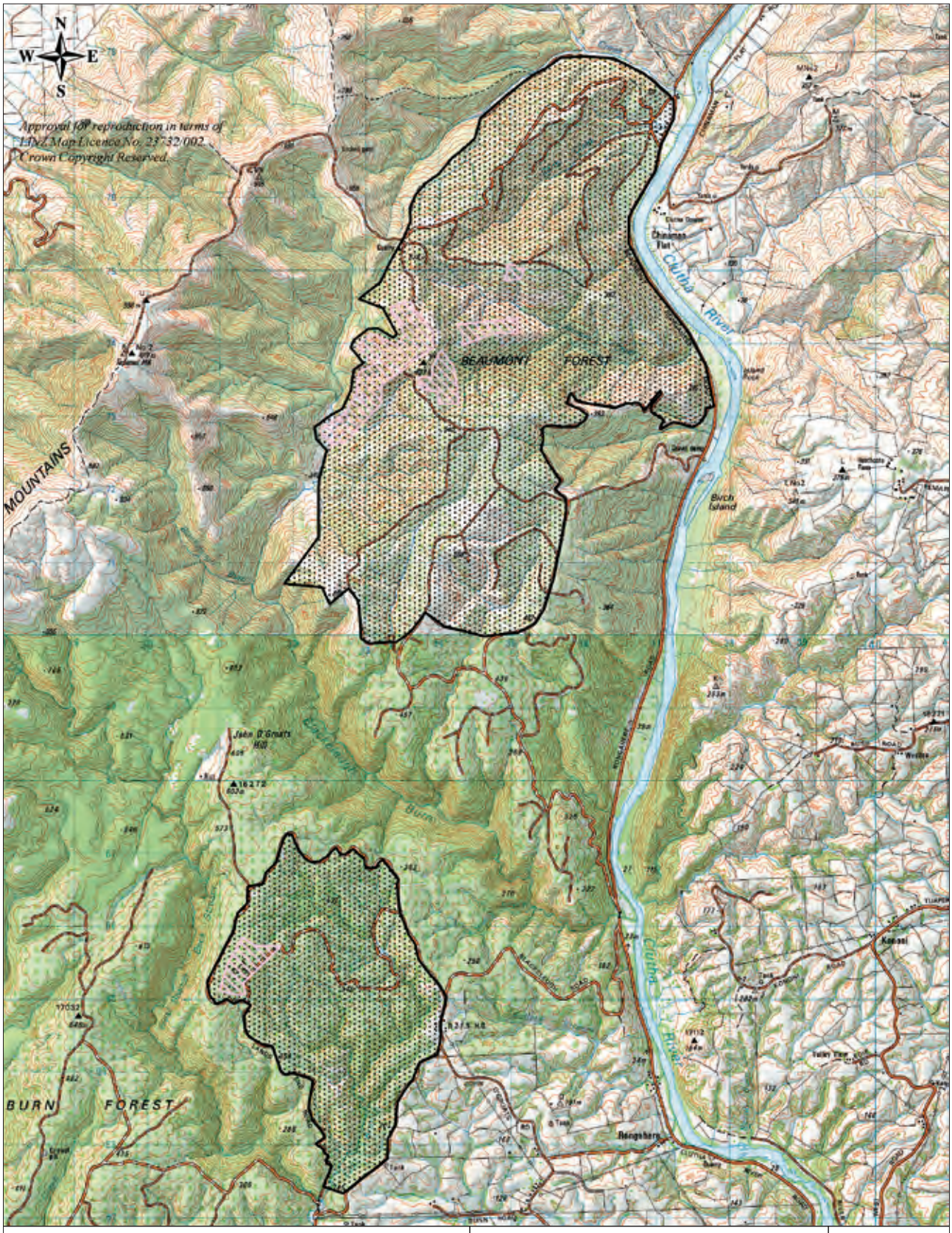
Lagarosiphon High Value Area

0 150 300
metres

Key Map

Appendix 5: Contorta Containment Areas and Contorta Clearance Areas — Maps C1–C5





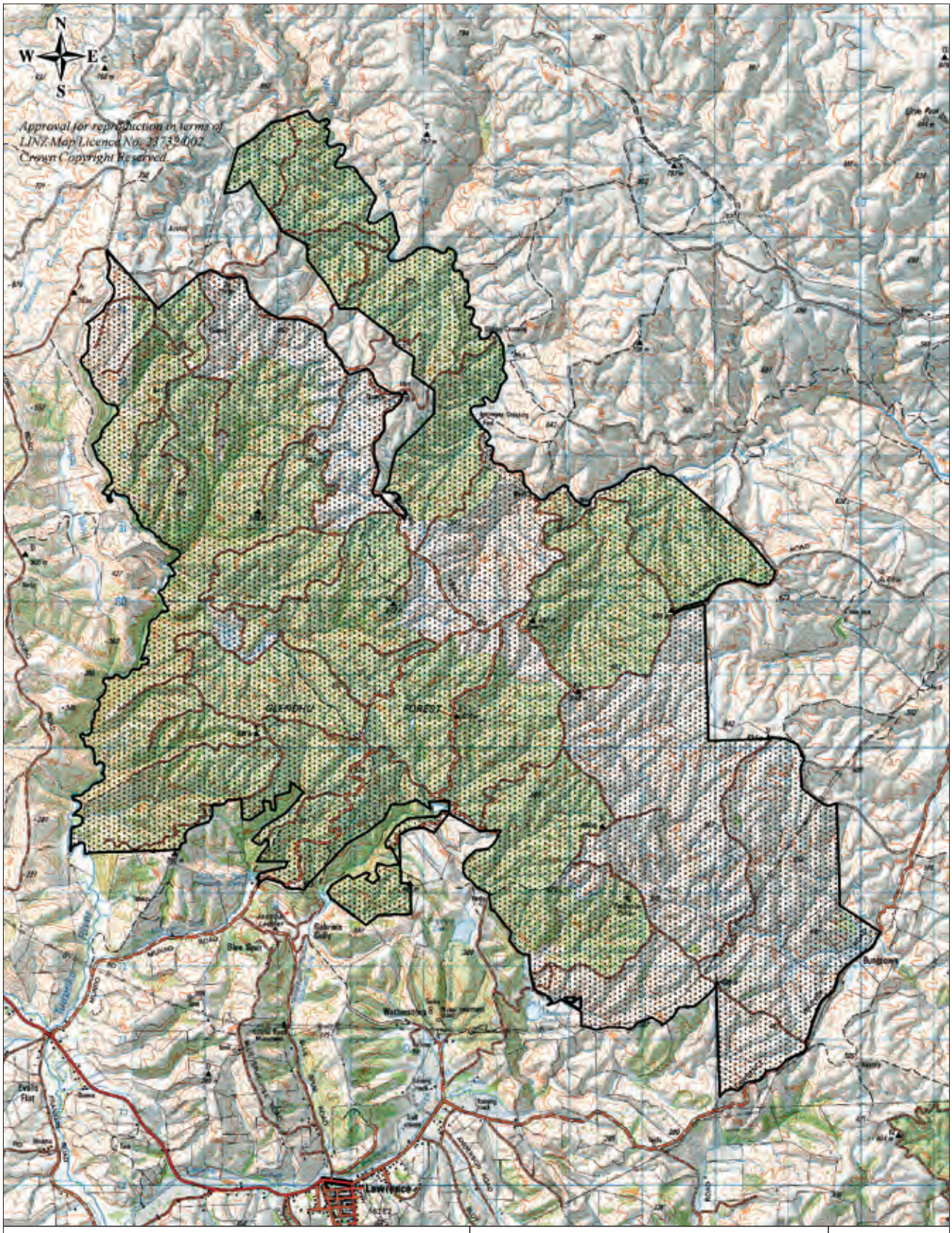
Contorta Containment and Clearance Areas Map C2

0 1 2
kilometres

Key

- Contorta Clearance Area
- Contorta Containment Area

Key Map



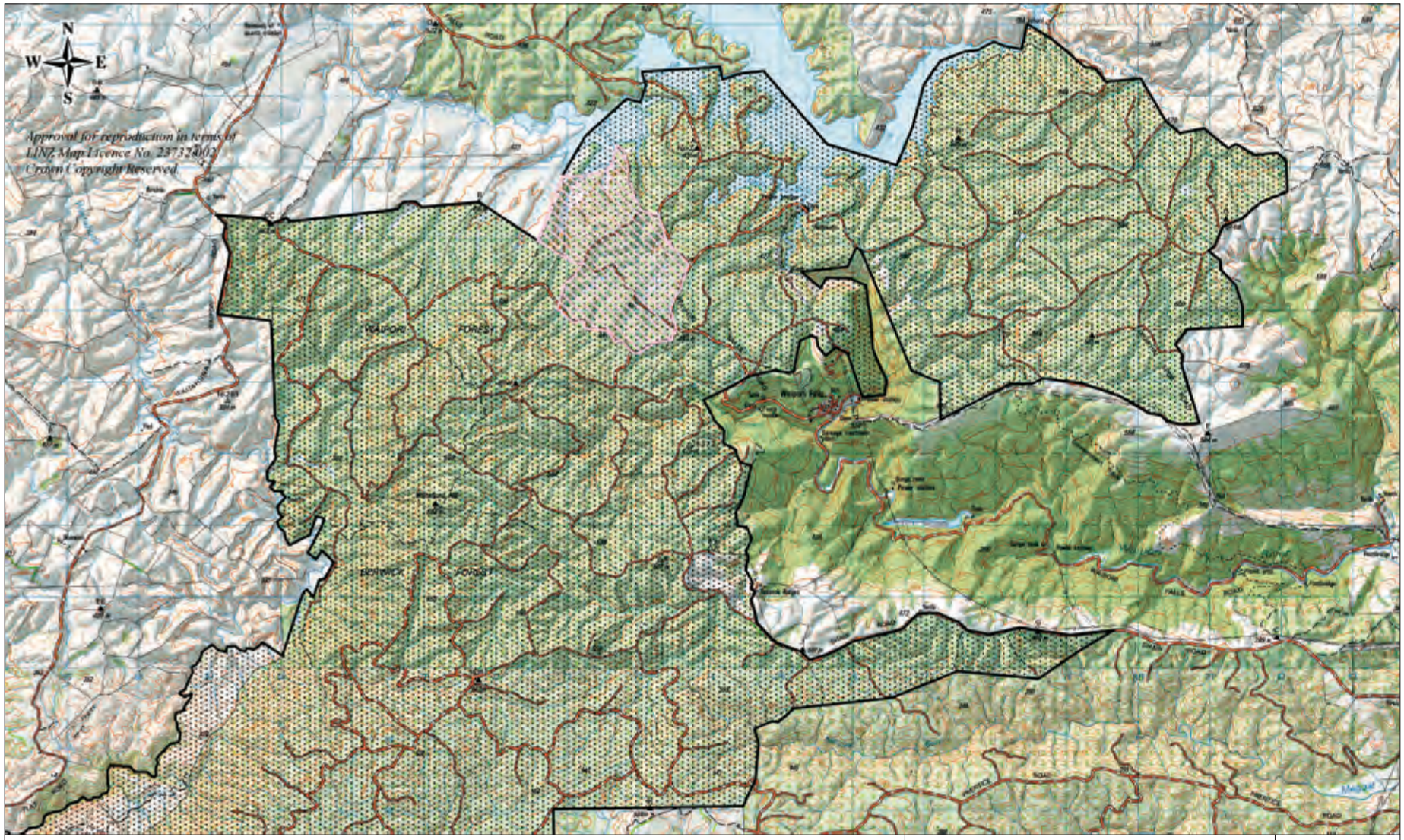
Contorta Containment and Clearance Areas Map C3

0 1 2
kilometres

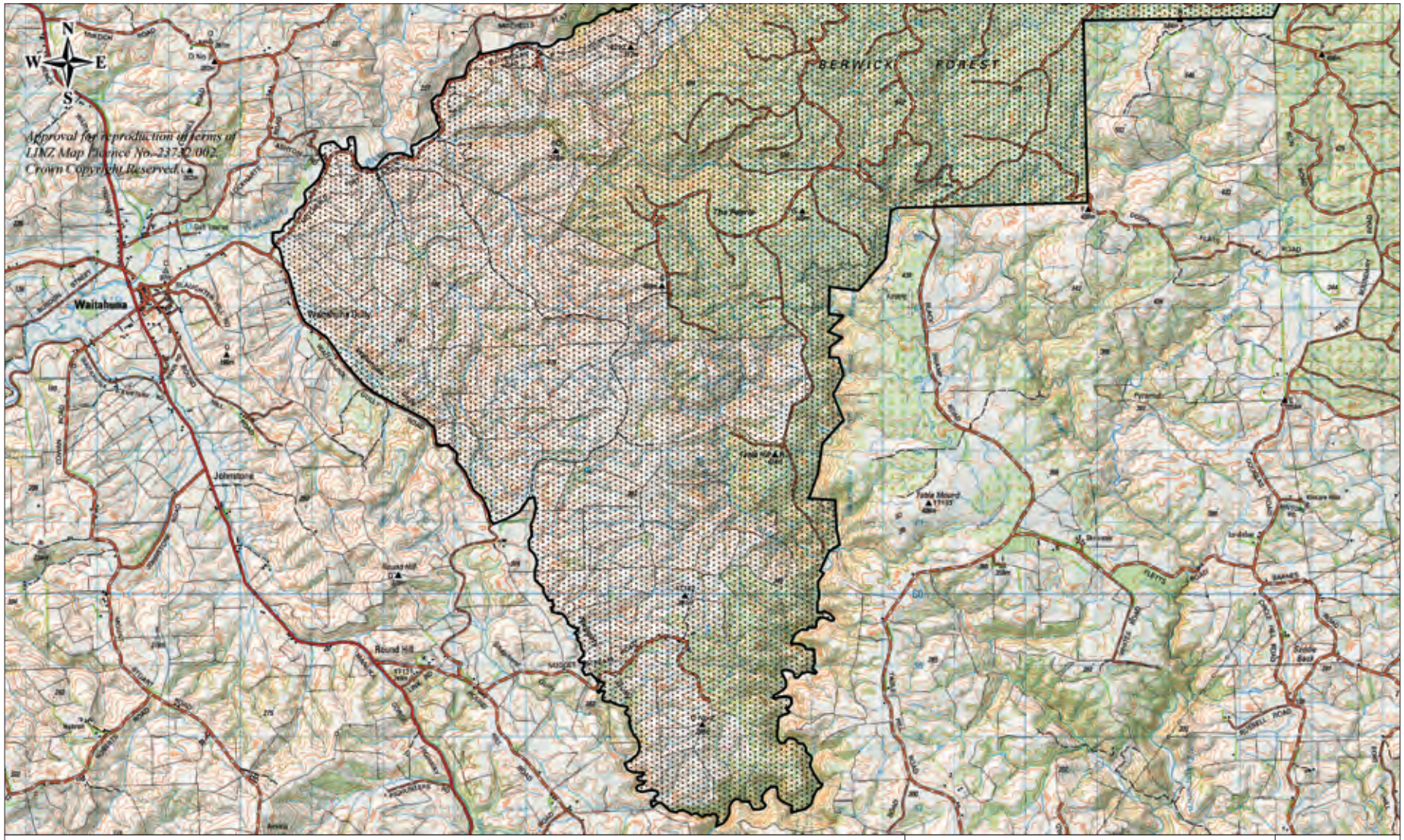
Key

Contorta Containment Area

Key Map

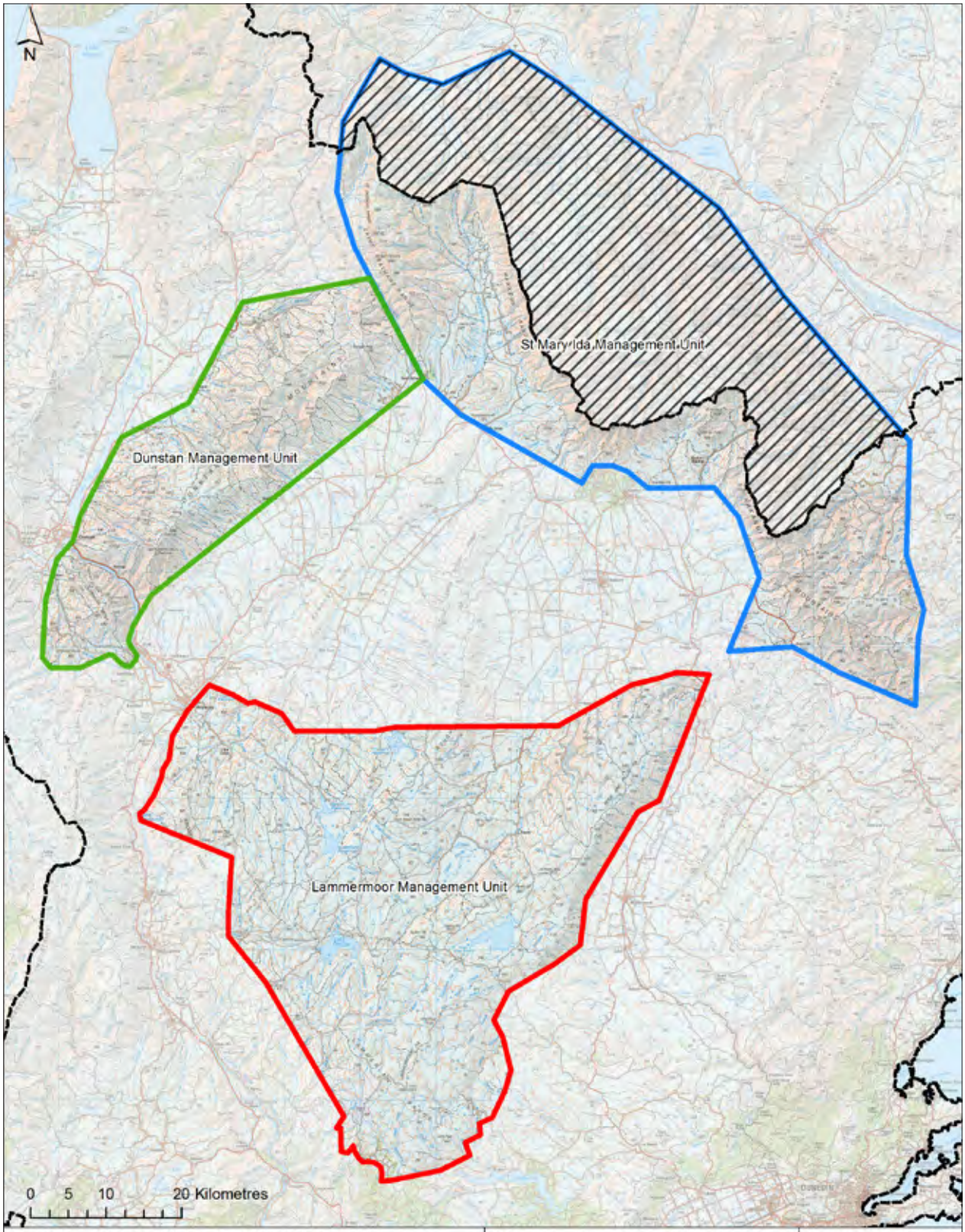


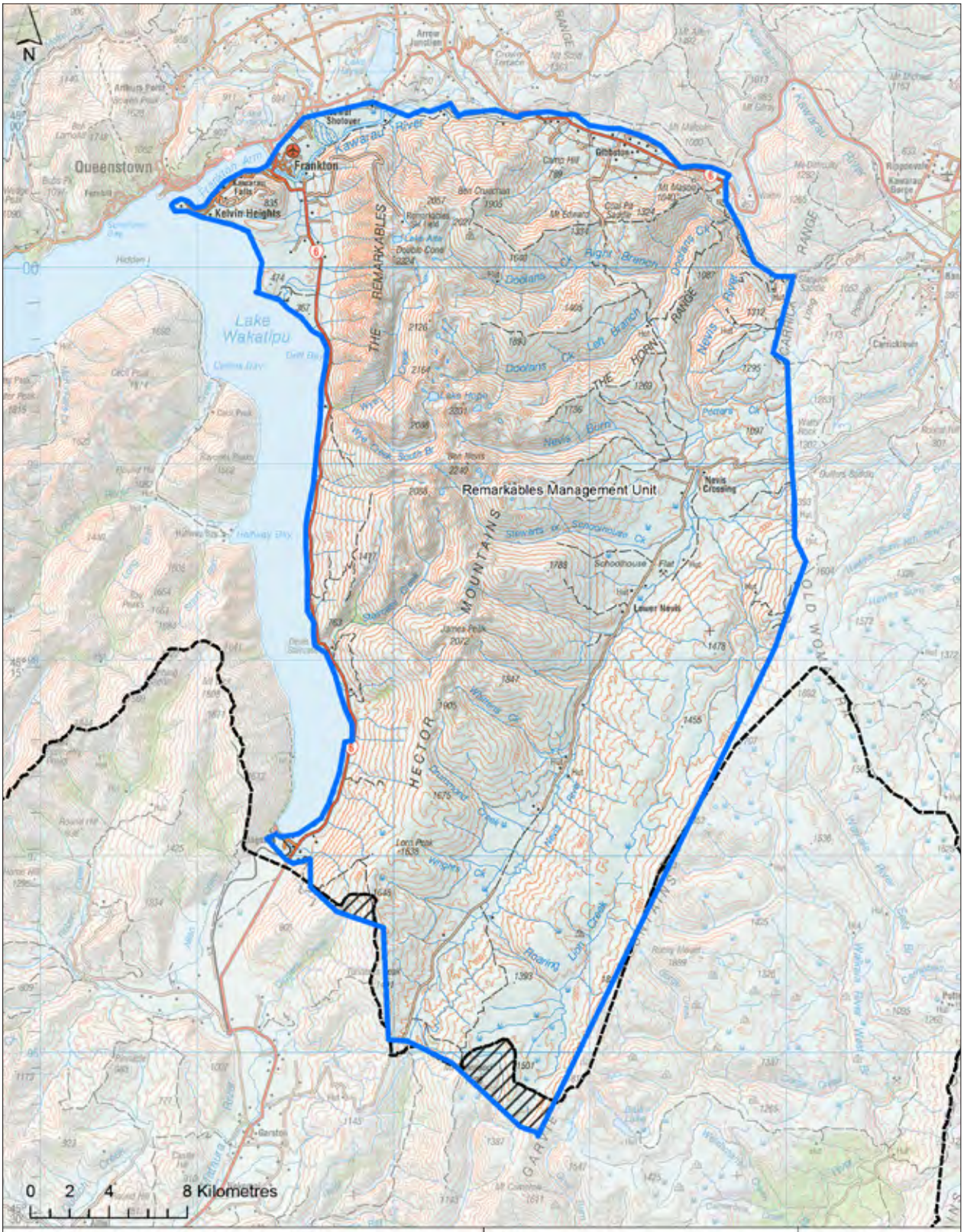
Contorta Containment and Clearance Areas Map C4



Contorta Containment and Clearance Areas Map C5

Appendix 6: Management Units for Eradication of Wilding Conifers





Pest Management Plan for Otago 2009

Map 6.2
Remarkables Management Unit

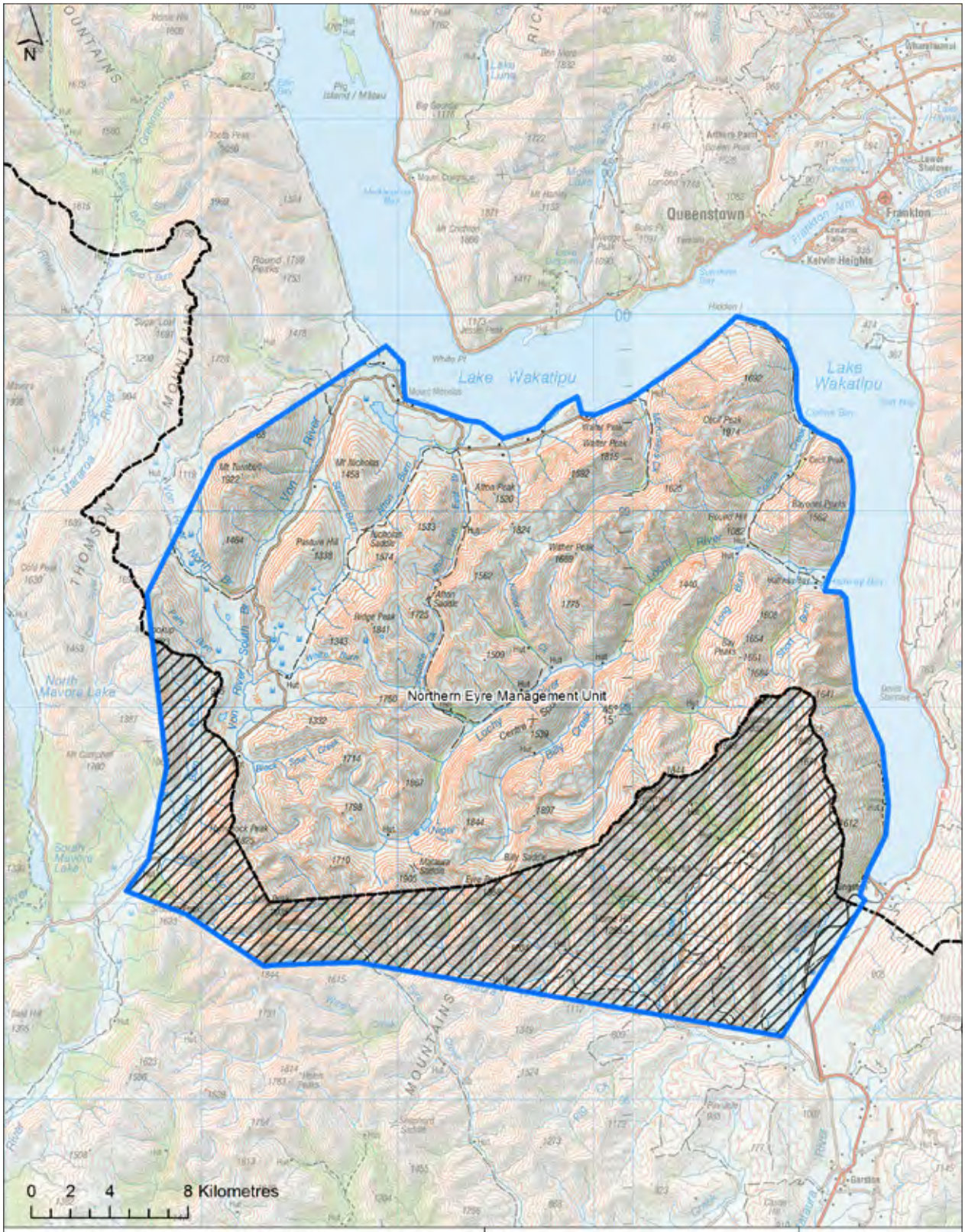
Otago Regional Council

21 February 2017

Key

- Remarkables Management Unit
- Otago Region
- Environment Southland Region

Key Map



Pest Management Plan for Otago 2009

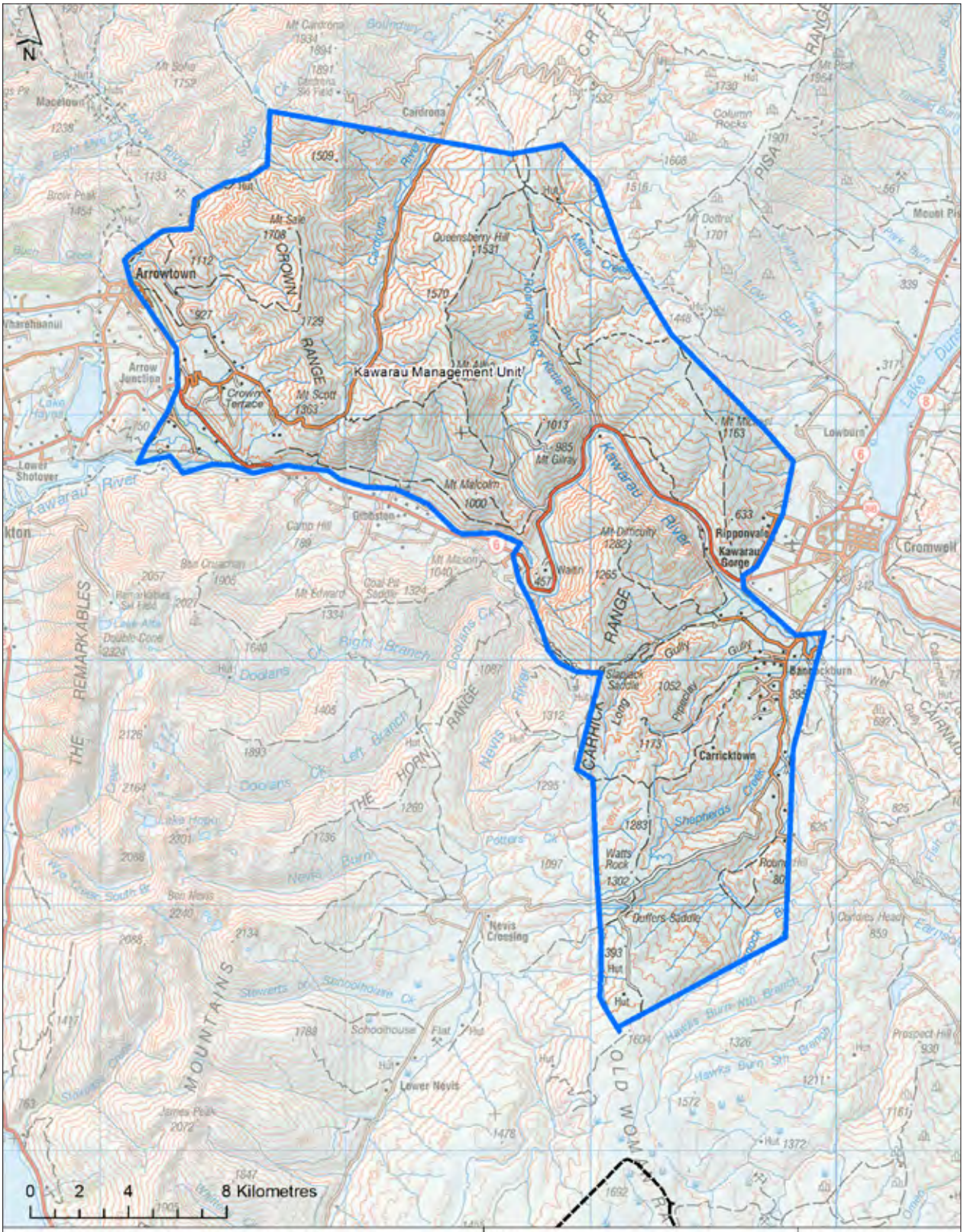
Map 6.3
Northern Eyre Management Unit

21 February 2017

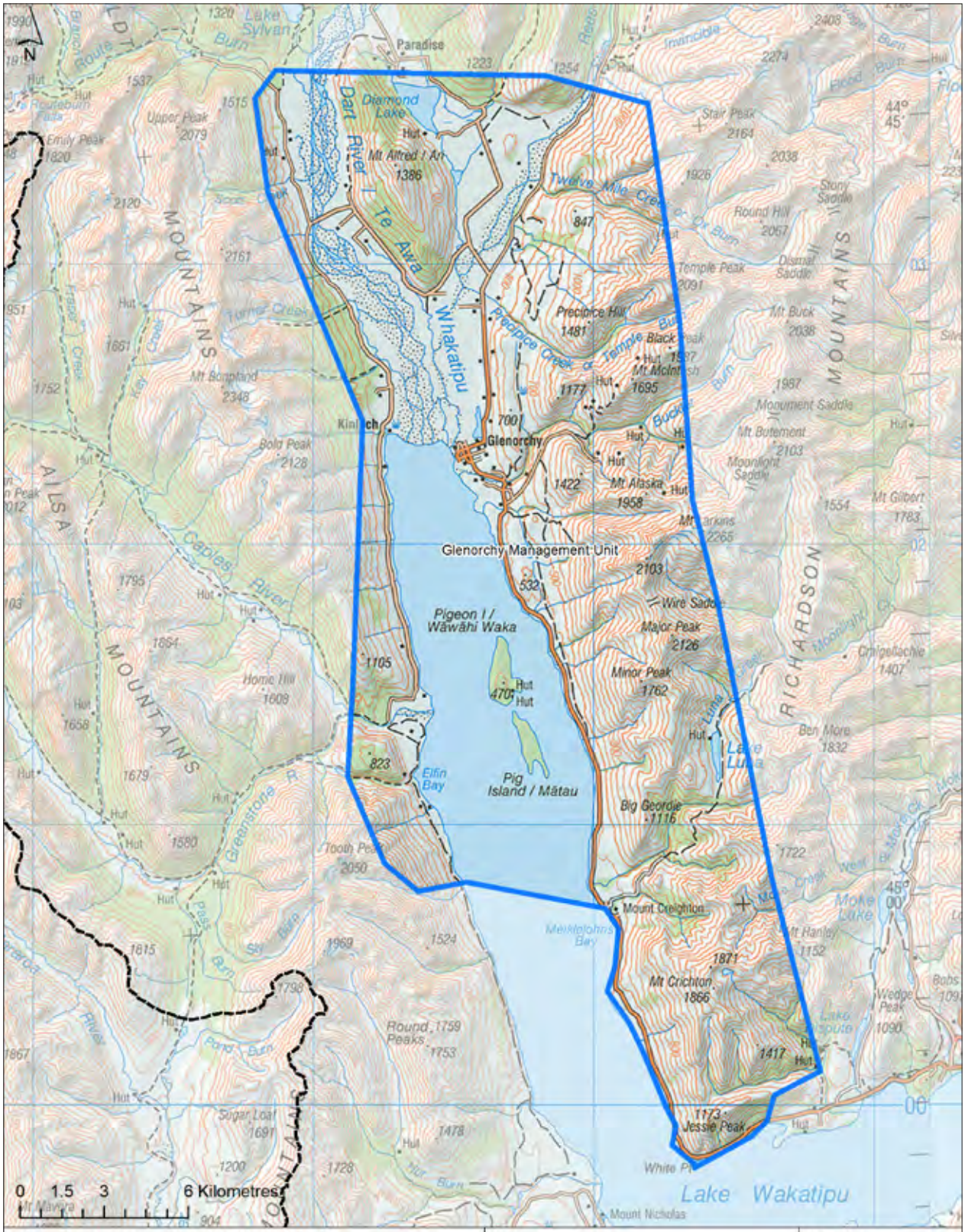
Key

- Northern Eyre Management Unit
- Otago Region
- Environment Southland Region

Key Map



Pest Management Plan for Otago 2009	Key	Key Map
Map 6.4 **Kawarau Management Unit** Sourced from the LINZ Data Service and licensed by LINZ for re-use under the Creative Commons Attribution 3.0 New Zealand licence. Otago Regional Council 21 February 2017	Kawarau Management Unit Otago Region	



Pest Management Plan for Otago 2009

Map 6.5
Glenorchy Management Unit

Otago Regional Council

21 February 2017

Key

- Glenorchy Management Unit
- Otago Region

Key Map