Otago Regional Council

PROPOSED REGIONAL PEST MANAGEMENT PLAN

Proposal for a Regional Pest Management Plan for Otago prepared in accordance with the Biosecurity Act 1993 and the National Policy Direction for Pest Management 2015.

Notified for submissions 1 November 2018.

Foreword

The ecosystems and landscapes across our large and diverse region are unique and provide benefits to us both economically and environmentally.

Many of New Zealand's introduced species have significant effects on our environment, biodiversity and economy. Pests such as rabbits, wallabies, gorse, broom, ragwort and nassella tussock have an adverse effect on our production land, impacting our economy and rural communities.

Our landscape, amenity and recreation values are affected by the spread of wilding conifer trees, and aquatic weeds like lagarosiphon. Our environment and habitats of indigenous species are impacted by pest plants such as old man's beard, which smothers and kills native vegetation, and predator pests which kill our indigenous wildlife.

The Biosecurity Act 1993 is the national legislation that sets out how central government and regional councils deal with pests and unwanted organisms in New Zealand. It enables regional councils to develop regional pest management plans to control and manage pests in their region by setting objectives and rules.

Otago Regional Council has a long history of managing pests in our region. The last Pest Management Plan took effect in 2009. Since this time, changes to the Biosecurity Act 1993 and the introduction of the National Policy Direction 2015 mean there are new requirements Otago Regional Council must meet.

The Proposed Pest Management Plan identifies 49 species to be managed by land occupiers, often with the involvement of Otago Regional Council. It builds on the 2009 Pest Management Plan by introducing new objectives and rules for a range of new species including wilding conifers, wild Russell lupin, and other plant and predator pests, and introduces new rules and controls for many of the existing species such as rabbits and gorse and broom.

In developing the Proposed Pest Management Plan, as well as ensuring this meets the new Biosecurity Act requirements, the council has consulted and engaged with many different stakeholders, groups and individuals. Their feedback has shaped our Proposed Pest Management Plan, and our associated Biosecurity Strategy. Together these seek to protect the things we treasure from the impacts of harmful organisms.

Thank you to all those who have contributed their feedback to this review and have assisted in developing the Proposed Pest Management Plan.

Stephen Woodhead

Chairman

Otago Regional Council

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PART ONE: PLAN ESTABLISHMENT

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1. INTRODUCTION

1.1 PROPOSAL FOR A REGIONAL PEST MANAGEMENT PLAN FOR OTAGO

Otago Regional Council has a regional leadership role under the Biosecurity Act 1993 (the Act) and intends to establish a Regional Pest Management Plan (the Plan/Proposal). The first formal step is notification of the Proposed Regional Pest Management Plan for the Otago Region for 10 years. This builds on the 2009-2019 Pest Management Strategy for Otago and previous pest management programmes.

This document has been prepared in accordance with Part 5 of the Act. It forms the Proposal required to be developed by ORC to "make" the Regional Pest Management Plan for Otago. When the new Plan commences it will replace the existing Pest Management Plan.

In conjunction with the Plan, ORC has also prepared a Biosecurity Strategy which sets out ORC's objectives for biosecurity management in the region using the full range of statutory and non-statutory tools available. How ORC manages biosecurity, including the management of organisms capable of causing adverse or undesirable effects is covered in the Biosecurity Strategy. The Biosecurity Strategy discusses all tools available to ORC, both regulatory and non-regulatory, to manage biosecurity risks for any organism, not just those formally specified as pests in the proposed Regional Pest Management Plan.

ORC is undertaking consultation on the Proposal and will notify the Proposal for public submissions during the period of 1 November and 14 December 2018. A hearing panel will hear submissions received on the Proposal. Following the hearing, ORC will release a written report, which will set out its decisions on the Plan and the reasons for accepting or rejecting the submissions on the Proposal. Any person who made a submission on the Proposal may make an application (similar to an appeal) to the Environment Court on any aspect of the Plan.

1.2 PURPOSE OF THE PLAN

Regional councils have a mandate under Part 2 of the Biosecurity Act 1993 to provide regional leadership in activities that prevent, reduce, or eliminate adverse effects from harmful species that are present in their region. Otago Regional Council (ORC) holds this role in the Otago region.

The purpose of the proposed Plan is to outline the framework to efficiently and effectively manage or eradicate specified organisms in the Otago region. Doing so will:

- minimise the actual or potential adverse or unintended effects associated with those organisms; and
- maximise the effectiveness of individual actions in managing pests through a regionally coordinated approach.

Many organisms in the Otago region are considered undesirable or a nuisance. This Plan manages pests where individual action or inaction in managing pests imposes undue economic, social, cultural or environmental effects and where efficient and effective pest control methods are available.

The Act has prerequisite criteria that must be met to justify such intervention. This proposal identifies those organisms classified as pests to be managed through the Plan.

Once operative, the Plan will empower the Otago Regional Council to exercise the relevant advisory, service delivery, regulatory and funding provisions available under the Act to deliver the specific objectives identified in Part Two: Pest Management.

The public can make submissions on the proposed Plan. The ORC will issue decisions after reviewing those submissions. Decisions can be appealed through the Environment Court.

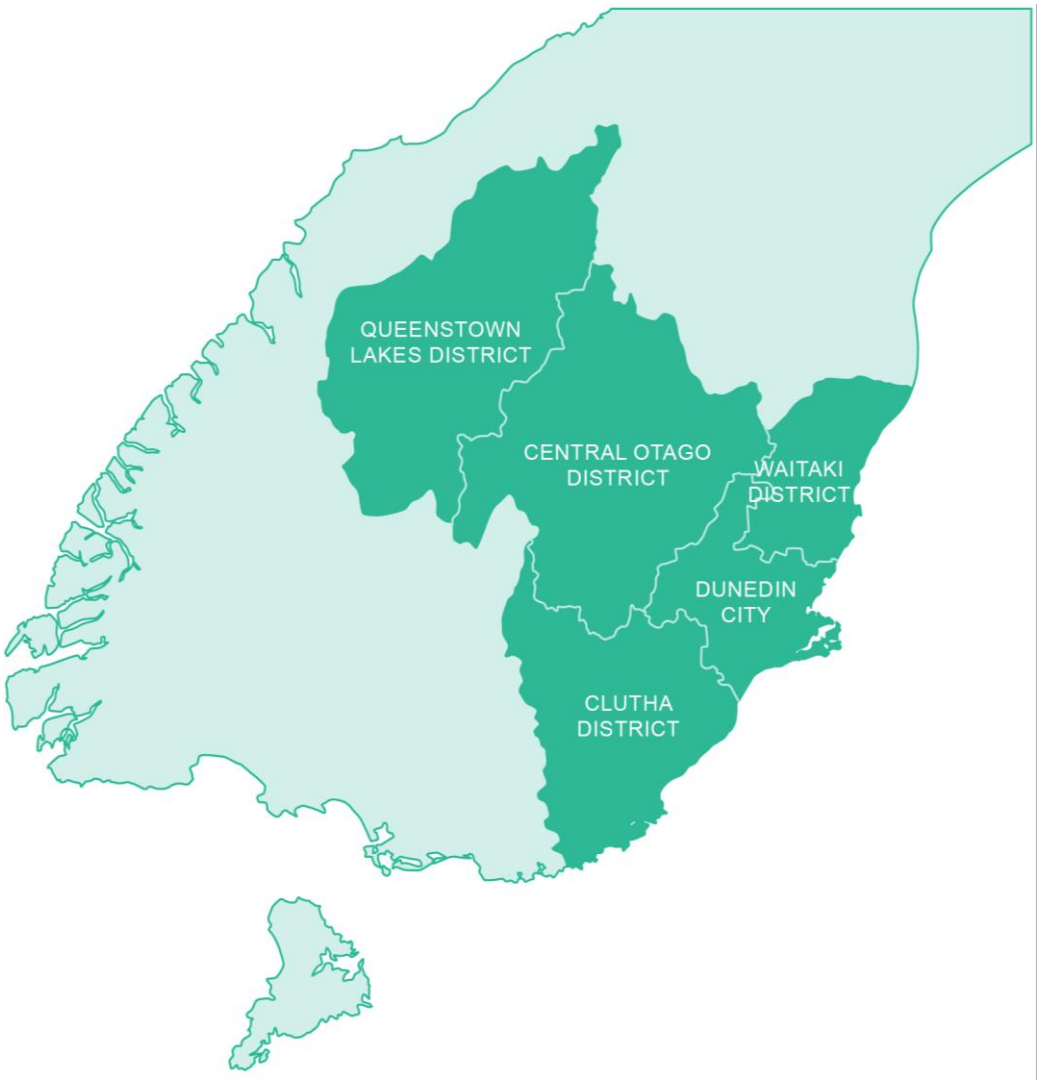
1.3 DURATION

The proposed Plan will take effect on the date on which the ORC affixes its seal and it becomes operative as a Regional Pest Management Plan under section 77 of the Act. It is proposed to remain in force for a period of 10 years following it becoming operative. The Plan may cease at an earlier date if the ORC declares by public notice that the objectives of the Plan have been achieved. It may also cease at an earlier date if, following a review, it is revoked. A review of the Plan as a whole must be undertaken after 10 years.

1.4 COVERAGE

The proposed Plan will operate within the administrative boundaries of the Otago region and covers a total area (land and sea) of approximately 32,000km^2 (see map below). The exclusion, eradication, progressive containment and sustained control programmes outlined in the Plan apply to the entire Otago region unless a specific, smaller area is described within the relevant programme.

Figure 1: The Otago Region



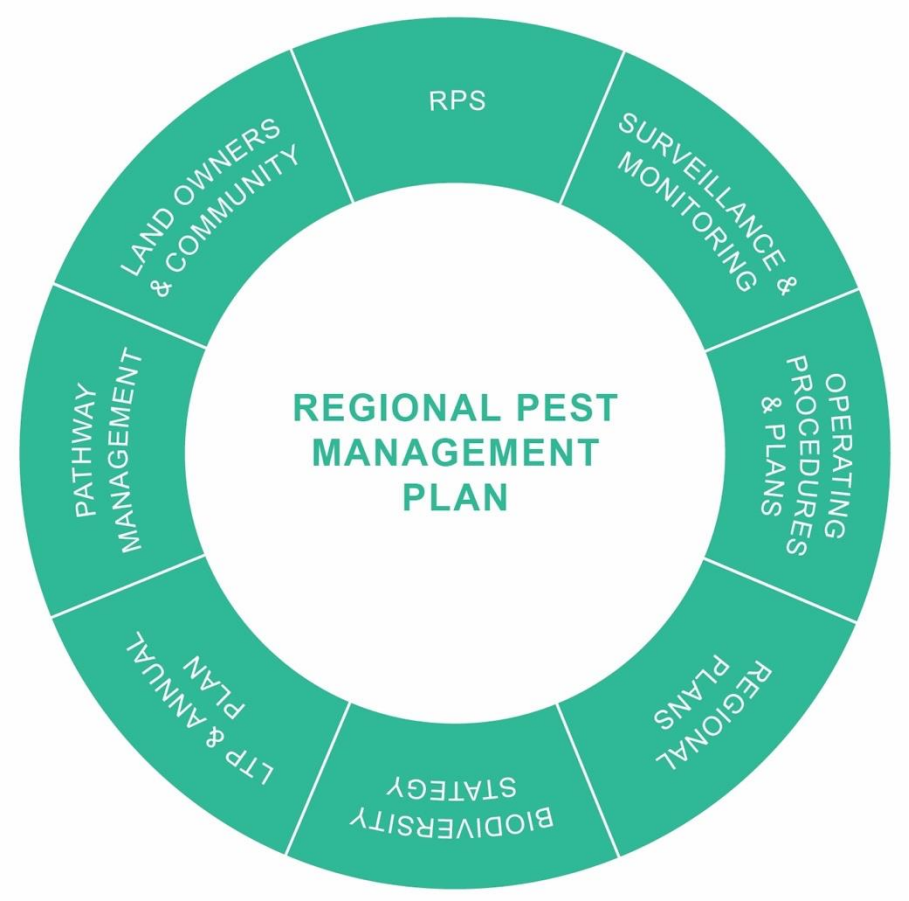
2. PLANNING, STATUTORY AND STRATEGIC BACKGROUND

2.1 STRATEGIC BACKGROUND

2.1.1 Otago Regional Council's biosecurity framework

Regional pest management sits within an integrated biosecurity framework for the Otago region. The Plan is supported by a number of complementary policies, plans, duties and functions, as illustrated in Figure 2 below. Land owners and/or occupiers and the wider community, either as beneficiaries or exacerbators (the person aggravating or contributing to a particular pest management problem by action or inaction) or both interact with these policies, plans, duties and functions.

Figure 2: Otago Regional Council's Biosecurity Framework



Proposed Biosecurity Strategy: At the same time as notifying the Plan, feedback will be sought on the proposed Biosecurity Strategy (the Strategy). The purpose of the Strategy is to set out the Otago Regional Council's wider biosecurity approach and to prioritise a programme of action to be implemented for effective biosecurity management across the Otago region.

The Strategy is a non-regulatory document that has been prepared by the ORC as part of a 'whole of Council approach' for biosecurity in the Otago region. It integrates the ORC's

statutory and non-statutory biosecurity functions, including guiding the delivery, monitoring and review of the Plan once operative.

Regional Policy Statement and Regional Plans: The Regional Policy Statement for Otago (RPS) and the Regional Water and Coast plans contain objectives, policies, rules and methods that support and complement the Plan.

In particular, the RPS contains policies and methods to:

- Control the adverse effects of pest species, prevent their introduction and reduce their spread, particularly where pests adversely affect lakes, rivers and wetlands, the coastal environmental, soil, ecosystems and indigenous biodiversity;
- Control the adverse effects of pest species, prevent their introduction and reduce their spread to safeguard indigenous species and their habitats, ecosystem services that support economic activities, water quality and quantity, soil quality, human and animal health, recreation values, landscapes, seascapes and natural character;
- Encourage, facilitate and support activities which control pests; and
- Prioritise pest management activities in areas of significant indigenous biological diversity and habitats of significant fauna.

Long Term and Annual Plan: The Otago Regional Council Long Term Plan (LTP) and the Annual Plan are developed by the ORC in accordance with the Local Government Act 2002 and Local Government (Rating) Act 2002. These plans guide the spending of rates, including spending for biosecurity purposes. The Annual Plan sets out the annual operational budgets for the ORC's biosecurity functions.

Otago Regional Council Biodiversity Strategy: The Biodiversity Strategy is a high-level document prepared in accordance with the Local Government Act 2002. The Strategy guides how the ORC will support the maintenance of indigenous biological diversity in the region.

The Biodiversity Strategy outcomes seek to reduce the impact of pests on indigenous species, provide more pest management information and support community-led initiatives.

Operational plans and procedures: The Act requires that an operational plan be prepared and reported on annually in accordance with section 100B. An operational plan sets out how the Plan is to be implemented and the report on the operational plan sets out ORC's progress towards meeting the Plan objectives.

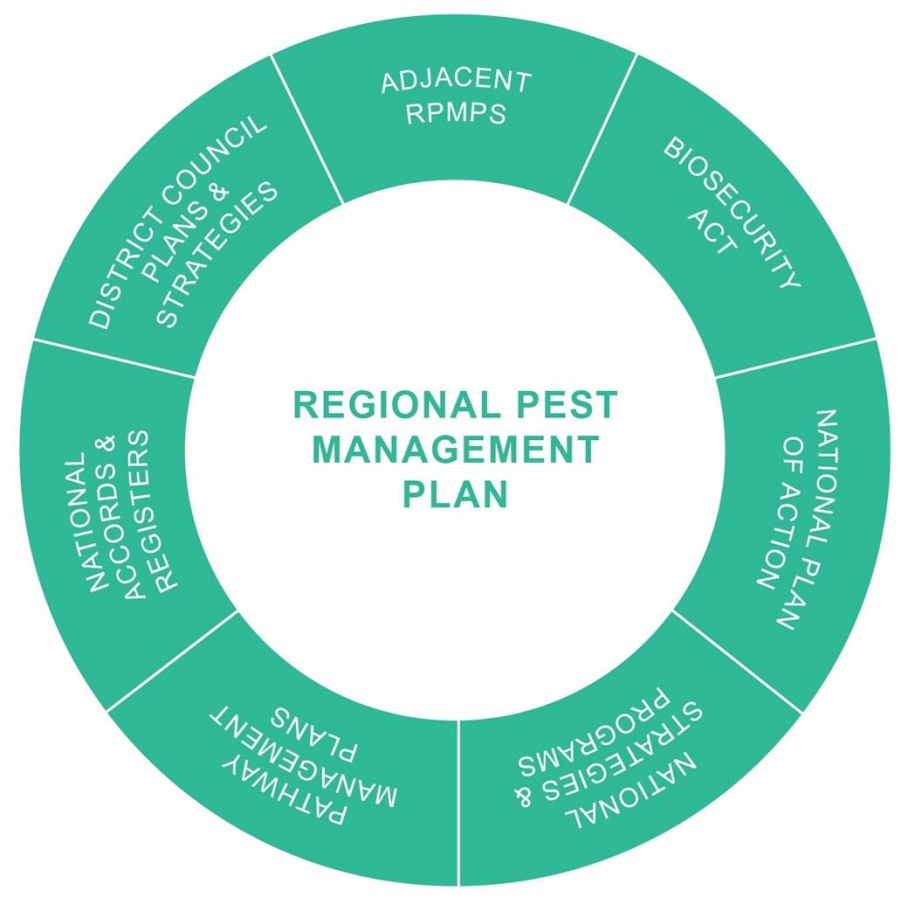
Surveillance and monitoring program: Otago Regional Council undertakes monitoring and surveillance activities in order to measure the progress made in managing pests. This may also include monitoring the Organisms of Interest in Appendix 1, and any other organisms that may present a threat to the region.

Pathway management plans: Like pest management plans, the Act enables the establishment of pathway management plans which focus on managing the movement and incursion routes of pests. These can be established at a regional or national level. No national pathway management plans are currently in place. No pathway management plan is proposed for Otago at this stage, but this will be explored in the future in accordance with the proposed Biosecurity Strategy.

2.1.2 Wider biosecurity framework

An effective biosecurity framework not only works at a regional level, but at a local and national level. Central Government is responsible for preventing pests from entering New Zealand and providing national leadership, coordination and implementation of pest incursions for eradication purposes. Other regional pest plans, pathway management plans and national legislation, policy and initiatives influence the Plan. The plans and strategies of territorial authorities also have a complementary role in biosecurity. As a result, a regional pest management plan is an integral component of a comprehensive biosecurity framework that protects New Zealand's environmental, economic, social and cultural values from pest threats.

Figure 3: Wider biosecurity framework



District council plans and strategies: There are a number of district council plans and strategies that are relevant to the Plan and have been taken into account during its development. In particular,

- The Dunedin City Council Environment Strategy 2016 seeks that pest management activities benefit Dunedin's natural ecosystems and that the best technology is used to manage pests.

- The Waitaki Biodiversity Strategy 2014 seeks to support community and voluntary actions for pest management, work collaboratively with other agencies, and to provide information on pest control and prevention measures.
- The Queenstown Lakes District Council Parks and Open Space Strategy 2017 seeks collaborative action on pest management activities in the district, and The Wakatipu Wilding Conifer Control Strategy 2013-2017 outlines goals and actions to manage wilding conifers in the district.

Adjacent regional pest management plans: The Canterbury, West Coast and Southland regions adjoining the Otago region also have regional pest management plans in place or under review that are relevant to the Otago Plan.

National accords and registers: The National Pest Plan Accord (NPPA) and National Pest Pet Biosecurity Accords (NPPBA) are cooperative agreements. The NPPA have agreements between Ministry for Primary Industries (MPI), Department of Conservation (DoC), regional councils and New Zealand Plant Producers Incorporated. The NPPBA have agreements between Ministry for Primary Industries (MPI), DoC, regional councils, Pet Industry Association and the New Zealand Companion Animal Council. The approximately 207 plant species identified in the NPPA are declared Unwanted Organisms in accordance with Part 9 of the Biosecurity Act and banned from propagation, sale and distribution. The NPPBA seeks to regulate the domestic trade of high-risk pets and encourage responsible pet ownership.

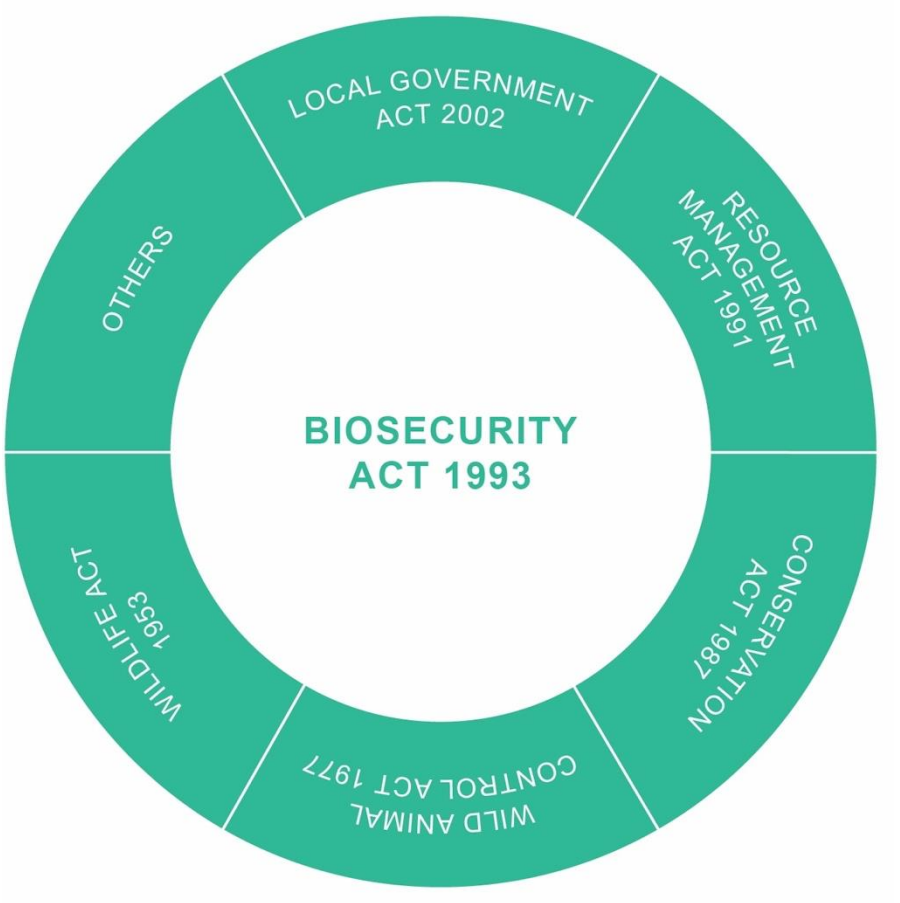
National plan of action: The Pest Management National Plan of Action sets out a number of national improvements to improve how pest management is implemented across the country including improving collective action and consistency, goal setting and measurement and pest management outcomes overall.

National strategies and programmes: The New Zealand Wilding Conifer Management Strategy 2015 – 2030 sets objectives to improve the management of wilding conifers at a national level. The New Zealand Biodiversity Action Plan 2016 and the Predator Free 2050 Programme set ambitious goals to manage the effects of pests (particularly animal predators) on indigenous biodiversity. The proposal seeks to support these national objectives by managing pest species that impact on biodiversity and indigenous flora and fauna.

2.2 LEGISLATIVE BACKGROUND

There are a number of different Acts that govern regional council functions and duties. Pest management is not dependent on one particular statute, however the Biosecurity Act 1993 is the key legislative instrument to efficiently and effectively manage specified harmful organisms through the development and implementation of regional pest management plans. This is supported by other legislative statutes which supports effective pest management in the region.

Figure 4: Biosecurity legislation



2.2.1 Biosecurity Act 1993

The Act is purpose-built for pest management. A regional council can use the Biosecurity Act to exclude, eradicate or effectively manage pests in its region, including unwanted organisms. A regional council is not legally obliged to manage pests, unless it chooses to do so. As such, the Act's approach is enabling rather than prescriptive. It provides a framework to gather intervention methods into a coherent system of efficient and effective actions.

A number of amendments have occurred since 1993. Changes of relevance to regional pest management, and particularly advanced through the Biosecurity Law Reform Act 2012, include:

- Regional pest management strategies are to be redeveloped as regional pest management plans. Provision has also been made for explicit pathway management plans in addition to specified pest management plans.
- The Crown will be bound to the requirements of the Good Neighbour Rules (GNRs) specified in a regional pest management plan. Such rules apply to all occupiers within the area over which the rules apply but they can only address pests spread across a property boundary.

- The Act provides for the National Policy Direction for Pest Management 2015 (NPD). Regional pest management plans must not be inconsistent with the NPD. Further details of the NPD are provided under section 2.2.2 below.
- A mandatory plan review need not occur before 10 years. However, review of a whole plan or part of a plan can take place at any time if necessary.

Three sections of the Act are particularly pertinent to regional councils:

Part 2: Functions, Powers and Duties in a Leadership Role

Regional councils are mandated under Part 2 (functions, powers and duties) of the Act to provide regional leadership for biosecurity activities that prevent, reduce, or eliminate adverse effects from harmful organisms that are present in its region.

Section 12B(1) of the Act sets out how regional councils provide leadership. It includes ways that leadership in pest management issues can help to prevent, reduce or eliminate adverse effects from harmful organisms. Some of these activities include helping to develop and align regional pest management plans and regional pathway management plans in the region, promoting public support for managing pests, and helping those involved in managing pests to communicate and cooperate so as to make programmes more effective, efficient, and equitable.

Section 13(1) of the Act sets out powers that support regional councils in this leadership role. This includes:

- Monitor and survey pests, pest agents, and unwanted organisms;
- Provide for the assessment and eradication or management of pests in accordance with relevant pest management plans;
- Prepare proposals for, “make” and implement regional pest management plans;
- Appoint a management agency for a plan;
- Disallow an operational plan or part of it;
- Review, amend, revoke and replace, or revoke a plan;
- Declare and implement small-scale management programmes, and
- Gather information, keep records and undertake research.

Part 5: Pest Management

Part 5 of the Act specifically covers pest management, including regional pest management. Its purpose is to provide for the eradication or effective management of harmful organisms. A harmful organism is assigned pest status when it is included in a regional pest management plan. Sections 69–78 of the Act prescribe the process for developing regional pest management plans, involving six steps from initiating a plan (by a proposal), to ensuring affected parties are consulted, and develop efficient regulatory and funding mechanisms.

While a regional council may initiate a regional pest management plan, it is also required to assess and undertake decision-making responsibilities in relation to all proposed pest management plans put forward by any another person or organisation.

Part 6: Administering a Regional Pest Management Plan

Once a regional pest management plan has commenced, the management agency specified in the plan may exercise the powers in Part 6 of the Act to implement the plan where the plan provides for the agency to exercise the power. These powers include the necessary regulatory powers, instruments and cost recovery mechanisms needed for administering the plan.

2.2.2 National Policy Direction for Pest Management 2015

The Act provides for the National Policy Direction for Pest Management 2015 (NPD). The purpose of the NPD is to ensure that activities under Part 5 of the Act (Pest Management) provide the best use of available resources for New Zealand's best interests, and align with each other (when necessary), to contribute to the eradication or effective management of harmful organisms present in New Zealand (the purpose of Part 5). The NPD does this by:

(a) clarifying requirements for Part 5 regulatory instruments; and

(b) ensuring consistent application of these requirements nationally and between regions, as appropriate.

Regional pest management plans must not be inconsistent with the NPD, which requires that:

- Objectives must follow a prescribed content;
- Management outcomes must align with one of five programmes: Exclusion, Eradication, Progressive Containment, Sustained Control or Site-led;
- Benefits and costs must be analysed in a prescribed manner and must be documented;
- Allocation of costs must be analysed in a prescribed manner; and,
- The construction of Good Neighbour Rules must address specified criteria.

Table 1: NPD requirements and the steps taken to comply with them

NPD requirements	Steps taken to comply
Objectives are set	The structure of the objectives used in Section 5 of Part 2 of the Proposal align with the requirements of clause 4 of the NPD.
The use of programmes	The types of programmes (described in Part 2 of the Proposal) match those set out in clause 5 of the NPD.
Benefits and costs are analysed	An analysis of the costs and benefits has been undertaken in accordance with clause 6 of the NPD. The results are summarised in Section 9 of this Proposal and the full analysis is published in the report *Meeting the requirements of the Biosecurity Act 1993 and National Policy Direction for Pest Management 2015: Analysis of costs and benefits* (The CBA Report).

Funding rationale is noted	Checked the funding rationale described in Section 9 of the Proposal has been developed in line with clause 7 of the NPD.
Good Neighbour Rules are described	GNRs have been developed in line with clause 8 of the NPD. Feedback was sought from Department of Conservation and Land Information New Zealand.

2.2.3 Resource Management Act 1991

Regional councils have functions and duties under the Resource Management Act 1991 (RMA) to sustainably manage the natural and physical resources of the region, including the Coastal Marine Area (CMA). These responsibilities include sustaining the potential of natural and physical resources, safeguarding life-supporting capacity and protecting environmentally significant areas and habitats (section 5(2) and section 6(c)).

The RMA sets out the functions of regional councils in relation to the maintenance and enhancement of ecosystems in the CMA of the region (section 30(1)(c)(iiia)), the control of actual or potential effects of use, development or protection of land (section 30(1)(d)(v)), and the establishment, implementation and review of objectives, policies and methods for maintaining indigenous biological diversity (section 30(1)(ga)).

The focus of the RMA is on managing adverse effects on the environment through regional policy statements, regional and district plans, and resource consents. The RMA, along with regional policies and plans can be used to manage activities so that they do not create a biosecurity risk or those risks are minimised. While the Biosecurity Act is the main regulatory tool for managing pests, there are complementary powers within the RMA that can be used to ensure the problem is not exacerbated by activities regulated under the RMA.

The Biosecurity Act cannot over-ride any controls imposed under the RMA, for example, bypassing resource consent requirements.

2.2.4 Local Government Act 2002 and Local Government (Rating) Act 2002

The Local Government Act 2002 (LGA) provides "*a framework and powers for local authorities to decide which activities they undertake and the manner in which they will undertake them*". The Local Government (Rating) Act 2002 is a companion Act, which provides local authorities with flexible powers to set, assess, and collect rates to fund local government activities; ensures rates are set in accordance with decisions that are made in a transparent and consultative manner; and enables ratepayers to identify and understand their liability for rates.

Both of these Acts support the Otago Regional Council's biosecurity activities, particularly through the ORC's ability to access rates as a funding source and to differentiate rates into both general and targeted categories.

2.2.5 Wild Animal Control Act 1977 and the Wildlife Act 1953

The Wild Animal Control Act 1977 and the Wildlife Act 1953, (both administered by the Department of Conservation) have a role in relation to managing animals.

(a) The Wild Animal Control Act 1977 (WAC Act) controls the hunting and release of wild animals and regulates deer farming and the operation of safari parks. The Wild Animal Control Act 1977 empowers the Department of Conservation to control wild deer, chamois, thar, wild goats and wild pigs. It also gives local authorities the power to destroy wild animals under operational plans that have the Minister of Conservation's consent.

(b) The Wildlife Act 1953 (WL Act) controls and protects wildlife not subject to the WAC Act. It identifies which wildlife are not protected (e.g., mustelids, possums, wallabies, rooks, feral cats); which are to be game (e.g., mallard ducks, black swan); and which are partially protected or are injurious.

2.2.6 Other legislation

Other legislation, such as the Reserves Act 1977 and the Conservation Act 1987, contain provisions that support pest management within a specific context. The role of regional councils under such legislation in relation to pest management is limited to advocacy.

2.3 RELATIONSHIP WITH OTHER PLANS AND REGULATIONS

2.3.1 Pest Management Plans

The Proposal must not be inconsistent with:

(a) any national pest management plan or regional pest management plan that is focused on the same organism; or

(b) any regulation.

There are no known inconsistencies with other pest management plans on the same organism or any pathway management plan. A number of organisms included in the Canterbury, West Coast and Southland councils' current regional pest management strategies are not included in this Proposal. However, the test is in relation to any other pest management plan on the same organism. If the organism is not in the Proposal, then there is no inconsistency.

Possums and mustelids are subject to the National Pest Management Strategy for Bovine Tuberculosis (TB). The objective for the National Strategy is the eradication of TB. This affects the context for each region and does not constitute an inconsistency between plans.

2.3.2 Resource Management Act Plans

The Proposal must not be inconsistent with the Otago Regional Policy Statement (RPS) or any plan developed in accordance with the RMA. The RPS signals that ORC will address pest management issues through a regional pest management plan developed under the Act. There is no inconsistency between the Proposal and the RPS.

2.3.3 Regulations

There are no known inconsistencies with any regulations.

2.4 RELATIONSHIP WITH MĀORI

One specific purpose of a regional pest management plan under the Act is to provide for the protection of the relationship between Māori and their ancestral lands, waters, sites, wāhi tapu, and taonga, and to protect those aspects from the adverse effects of pests. Māori involvement in biosecurity is an important part of exercising kaitiakitaka. Māori also carry out significant pest management through their primary sector economic interests and as land owners and/or occupiers.

The LGA requires councils to recognise and respect the Crown's responsibilities under the Tiriti o Waitangi - Treaty of Waitangi. It also requires councils to maintain and improve opportunities for Māori to contribute to decision-making processes. This includes considering ways to help Māori to contribute. These responsibilities and requirements were met while preparing this Plan and will continue after it takes effect.

2.5 CONSULTATION OVERVIEW

This Plan proposal has been prepared to provide opportunity for public feedback and submissions as part of the formal consultation process under the Act. A hearing will be held to consider all submissions prior to the "making" of the Plan and its approval by ORC.

The Plan proposal is the outcome of the review of the existing Pest Management Strategy 2009, which has included opportunities for informal feedback by the public and stakeholders.

Stakeholder engagement on the development of a new Regional Pest Management Plan commenced in October 2017.

A stakeholder forum on biodiversity and pest management was held on 31 October 2017. This provided information about developing the new Plan and sought feedback on pest management issues in Otago. 42 stakeholders and partners from local government, statutory authorities, Kāi Tahu, environmental groups and industry groups attended the session.

ORC also held pop-in sessions in four locations across the region. These pop-in sessions were held in Cromwell, Dunedin, Balclutha and Oamaru. The purpose of the pop-in sessions was to provide an opportunity for people to provide their feedback in person about what should be included in the new Plan and what the ORC should be doing more of to manage pests in Otago.

During November 2017, the Otago Regional Council webpage also included an online questionnaire. This sought people's views on the important pest management issues in Otago, pests in the current Pest Management Strategy, pests they may wish to see in the new Plan, and any other comments they had about pest management in Otago.

Feedback received during this period was summarised and published in December 2017 *A summary of community feedback on the development of a new Regional Pest Management Plan for Otago.* This feedback informed the development of the Plan and the supporting Biosecurity Strategy.

All key stakeholders were further consulted on the draft pests and programmes for the Plan. Further meetings and workshops were undertaken with key stakeholders who had an interest in discussing the development of the Plan further with ORC.

For a full outline of all consultation please refer to the full consultation summary titled *Summary of consultation on the development of the Proposed Pest Management Plan and Biosecurity Strategy (2018)*.

3. RESPONSIBILITIES AND OBLIGATIONS

3.1 THE MANAGEMENT AGENCY

It is proposed that Otago Regional Council will be the management agency responsible for implementing the Proposal and the resultant Plan because:

(a) Otago Regional Council is accountable to the Plan funders, including Crown agencies, through the requirements of the LGA 2002;

(b) it is acceptable to the funders and those persons subject to the Plan's provisions because it has implemented previous regional pest management strategies; and

(c) it has the capacity, competency and expertise to implement the Plan.

In addition to implementation methods detailed in the Proposal, Otago Regional Council maintains an internal set of operating procedures and these shall be updated to guide the delivery on the Plan.

Pest management in Otago is a shared responsibility and, while Otago Regional Council will be the management agency, pest management will be undertaken by many different stakeholders, agencies, community groups and individuals. This approach will result in effective and enduring pest management outcomes for the region.

3.2 COMPENSATION AND DISPOSAL OF RECEIPTS

The Plan will not provide for compensation to be paid to any persons meeting their obligations under its implementation. However, should the disposal of a pest or associated organism provide any net proceeds, a person will be paid disbursement in the manner noted under section 100I of the Act.

3.3 AFFECTED PARTIES

3.3.1 Responsibilities of occupiers (including owners)

Pest management is an individual's responsibility in the first instance because generally occupiers contribute to the pest problem and in turn benefit from the control of pests. The term "occupier" has a wide definition under the Act and includes:

- the person who physically occupies the place; and
- the owner of the place; and
- any agent, employee, or other person acting or apparently acting in the general management or control of the place.

Under the Act, "place" includes: any building, conveyance, craft, land or structure and the bed and waters of the sea and any canal, lake, pond, river or stream.

Occupiers must manage pests in accordance with the rules. If they fail to meet the rules' requirements, they may face legal action. For example, some rules specify that a

contravention of the rule creates an offence under section 154N(19) of the Act. Occupiers (and other persons) must not sell, propagate, breed or distribute pests.

An authorised person may enter and inspect any place, at any reasonable time, to:

- find out whether pests are on the property;
- manage pests; or
- ensure the owner and/or occupier is complying with biosecurity law.

While the occupier may choose the methods they will use to control any pests, they must also comply with the requirements under other legislation (for example the RMA and/or the Hazardous Substances and New Organisms Act 1996).

This Proposal treats all private land equitably and emphasises the responsibilities and obligations of all occupiers. Otago Regional Council acknowledges the complexity around Māori land which is multiply owned. Where occupiers are unknown, the Māori Land Court or the Registrar of Companies may help to identify and assist in communication with owners.

3.3.2 Crown agencies

Under section 69(5) of the Act, the Crown is liable to meet the obligations or costs that are required to meet GNRs contained within regional pest management plans. A GNR addresses situations where a pest may spread across a property boundary, where that spread impacts a neighbouring property where that pest is being controlled.

3.3.3 Territorial authorities

Five territorial authorities are wholly or partly contained within the Otago region. They are:

- Dunedin City Council
- Clutha District Council
- Central Otago District Council
- Queenstown Lakes District Council
- Waitaki District Council - straddles both the Otago and Canterbury regions.

Territorial authorities are required to control pests on land that they occupy, in accordance with the rules of the Proposal, and to meet the costs of doing so.

3.3.4 Road reserves and rail corridors

For the purposes of this Plan, the control of pests on roads 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.

For the purposes of the Act, KiwiRail is treated separately to the Crown, and comes within the definition of an occupier of land under the Act. Accordingly, it has obligations and

responsibilities for pest management on the land that it occupies, equal to those of other occupiers.

KiwiRail and Otago Regional Council will work by agreement to manage mutual obligations and expectations. This may include the development of agreements which provide a comprehensive approach to the management of pests in the rail corridor in accordance with the Objectives and Rules of the Plan and any exemption/s in accordance with section 78 of the Biosecurity Act 1993.

PART TWO: PEST MANAGEMENT

Tradescantia

4. ORGANISM DECLARATIONS

4.1 ORGANISMS DECLARED AS PESTS

The organisms listed in Table 2 are classified as pests. The table also indicates what management programme or programmes will apply to the pest and if a Good Neighbour Rule (GNR) applies.

Attention is also drawn to the **statutory obligations** of any person under section 52 and section 53 of the Act. Those sections ban anyone from selling, propagating or distributing any pest, or part of a pest, covered by the Plan. Not complying with section 52 and section 53 is an offence under the Act and may result in the penalties noted in section 157(1).

Table 2: Organisms classified as pests

Common Name	Scientific Name	Primary Programme	Good Neighbour Rule
Plants			
African feather grass*	*Pennisetum macrourum*	Exclusion	
African love grass*	*Eragrostis curvula*	Progressive containment	
Banana passionfruit	*Passiflora tripartita var mollissima* *P. tripartita var azuayansis* *P. tarminiana** *P. pinnatistipula* *Passiflora x rosea* *P. caerulea*	Site-led	
Bomarea*	*Bomarea caldasii B. multiflora*	Progressive containment	
Boneseed*	*Chrysanthemoides monilifera*	Progressive containment	
Broom (common and montpellier)	*Cytisus scoparius* *Teline monspessulana*	Sustained control	Yes
Bur daisy	*Calotis lappulacea*	Progressive containment	
Cape ivy	*Senecio angulatus*	Progressive containment	
Chilean flame creeper	*Tropaeolum speciosum*	Site-led	
Chilean needle grass*	*Nassella neesiana*	Exclusion	
Contorta (lodgepole) pine*[5]	*Pinus contorta*	Progressive Containment	Yes

Corsican pine[5]	*Pinus nigra*	Progressive Containment	Yes
Darwin's barberry*	*Berberis darwinii*	Site-led	
False tamarisk	*Myricaria germanica*	Exclusion	
Gorse	*Ulex europeaus*	Sustained control	Yes
Gunnera	*Gunnera tinctoria*	Site-led	
Lagarosiphon*	*Lagarosiphon major*	Site-led	
Larch (excl. sterile hybrids) [5]	*Larix decidua*	Progressive Containment	Yes
Moth plant*	*Araujia hortorum*	Exclusion	
Mountain pine and dwarf mountain pine[5]	*Pinus uncinata* *Pinus mugo*	Progressive Containment	Yes
Nassella tussock*	*Nassella trichotoma*	Progressive containment	
Nodding thistle	*Carduus nutans*	Sustained control	Yes
Old man's beard*	*Clematis vitalba*	Progressive containment	
Perennial nettle	*Urtica dioica*	Progressive containment	
Ragwort	*Senecio jacobaea*	Sustained control	Yes
Scots pine[5]	*Pinus sylvestris*	Progressive Containment	Yes
Spartina	*Spartina spp*	Progressive containment	
Spiny broom	*Calicotome spinosa*	Eradication	
Sycamore	*Acer pseudoplatanus*	Site-led	
Tradescantia*	*Tradescantia fluminensis*	Site-led	
White-edged nightshade*	*Solanum marginatum*	Progressive containment	
Wilding conifers[3]	See Table 3	Progressive containment	Yes
Wild Russell lupin[4]	*Lupinus polyphyllus*	Sustained control	
Animals			
Bennett's wallaby [1, 2]	*Macropus rufogriseus rufogriseus*	Eradication	

Feral cat	*Felis catus*	Site-led	
Feral deer	*Cervus elaphus, C. nippon, C. dama*	Site-led	
Feral goat	*Capra aegagrus hircus*	Site-led	
Feral pig	*Sus scrofa*	Site-led	
Feral rabbit	*Oryctolagus cuniculus*	Sustained control	Yes
Hedgehog	*Erinaceous europaeus*	Site-led	
Mustelids (ferret, stoat, weasel	*Mustelo furo, M. ermine, M. nivalis*	Site-led	
Possum	*Trichosurus vulpecula*	Site-led	
Rat (Norway, ship and Kiore)	*Rattus norvegicus, R. rattus, R. exulans*	Site-led	
Rook*	*Corvus frugilegus*	Eradication	

* Classified as Unwanted Organisms

1. Also included in Site-led programmes.

2 Unwanted Organism status expires 20/09/2021.

3 Wilding conifers are any introduced conifer tree, including (but not limited to) any of the species listed in Table 3, established by natural means unless it is located within a forest plantation, and does not create any greater risk of wilding conifer spread to adjacent or nearby land than the forest plantation that it is a part of. For the purposes of this definition, a forest plantation is an area of 1ha or more of predominantly planted trees. This also excludes planted conifers of less than 1ha, such as windbreaks and shelterbelts existing before March 2019.

4 Wild Russell lupin are Russell lupins that are established by natural means.

5 Does not include specimens used or intended to be used for planation forestry purposes in a plantation forest as defined by regulation 3(1) of the Resource Management (National Environmental Standards for Planation Forestry) Regulations 2017.

Table 3: Introduced conifer trees

Common name	Scientific name
Bishops pine	*Pinus muricata*
Contorta (lodgepole) pine*	*Pinus contorta*
Corsican pine	*Pinus nigra*
Douglas fir	*Pseudotsuga menziesii*
Larch	*Larix decidua*
Maritime pine	*Pinus pinaster*
Mountain pine and dwarf mountain pine	*Pinus mugo and P.uncinata*
Ponderosa pine	*Pinus ponderosa*

Radiata pine	*Pinus radiata*
Scots pine	*Pinus sylvestris*

4.2 PEST AGENTS

There are some organisms specified as pest agents in the Proposal. These are distinct from other organisms which are classified as pests. Pest agents are defined in the Biosecurity Act:

> *Pest agent, in relation to any pest, means any organism capable of-*
>
> *(a) helping the pest replicate, spread, or survive; or*
>
> *(b) interfering with the management of the pest.*

Pest agent rules are included in the Proposal to ensure the success of the related pest objective for wild Russell lupin *Lupinus polypyllus*.

4.3 OTHER ORGANISMS THAT MAY BE CONTROLLED

The organisms specified as pests in the Plan are those that are capable of causing '*adverse effects of harmful organisms on economic wellbeing, the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga'*.

Section 70(2)(d) of the Act also provides for the specification of '*any other organisms intended to be controlled*' but not accorded pest status. There are many further organisms capable of causing adverse effects, particularly to biodiversity values. A number pose a sufficient future risk to warrant being watch-listed for ongoing surveillance or future control opportunities. These organisms have been categorised as 'Organisms of Interest' (OOI). OOIs are not accorded pest status but future control of them could arise, for example through site-led programmes. A review of the Plan may be necessary to include them as pests. However, OOIs may be controlled in other ways in accordance with the Proposed Biosecurity Strategy. A list of all OOIs is provided in Appendix 1.

4.4 UNWANTED ORGANISMS

A number of species have been declared nationally as Unwanted Organisms. For the most up-to-date list of Unwanted Organisms, visit the MPI website at https://www.mpi.govt.nz.

The National Pest Plant Accord (NPPA) currently targets 113 plant species, all of which are declared Unwanted Organisms. NPPA is a cooperative agreement between the Nursery and Garden Industry Association, regional councils and Government departments with biosecurity responsibilities. It seeks to prevent the sale and/or distribution of the specified plants where either formal or casual horticultural trade is the most significant way of spreading the plants in New Zealand. The most up-to-date list of Accord species is also available on the MPI website.

Unwanted Organism status means that such an organism is prohibited from sale, propagation and distribution in accordance with sections 52 and 53 of the Act. Where this restriction is considered sufficient for their management they are not included as pests in this Plan. However, unwanted organisms may be controlled in other ways in accordance with the Proposed Biosecurity Strategy.

5. PEST MANAGEMENT FRAMEWORK

5.1 OBJECTIVES

Objectives have been set for each pest or class of pests. As required by the NPD, the objectives include:

- the particular adverse effect/s (section 54(a) of the Act) to be addressed;
- the intermediate outcomes of managing the pest;
- the geographic area to which the objective applies;
- the level of outcome, if applicable;
- the period for achieving the outcome; and
- the intended outcome in the first 10 years of the Plan (if the period is greater than 10 years).

5.2 PEST MANAGEMENT PROGRAMMES

One or more pest management programme(s) will be used to control pests and any other organisms covered by this Plan. The types of programme are defined by the NPD and reflect outcomes in keeping with the extent of the invasion within the region and whether it is possible to achieve the desired control levels.

The intermediate outcomes for the five programmes are described below.

1. **Exclusion Programme**: to prevent the establishment of the subject, or an organism being spread by the subject, that is present in New Zealand but not yet established in an area.
2. **Eradication Programme**: to reduce the infestation level of the subject, or an organism being spread by the subject, to zero levels in an area in the short to medium term.
3. **Progressive Containment Programme**: to contain or reduce the geographic distribution of the subject, or an organism being spread by the subject, to an area over time.
4. **Sustained Control Programme**: to provide for ongoing control of the subject, or an organism being spread by the subject, to reduce its impacts on values and spread to other properties.
5. **Site-led Pest Programme**: that the subject, or an organism being spread by the subject, that is capable of causing damage to a place is excluded or eradicated from that place, or is contained, reduced, or controlled within the place to an extent that protects the values of that place.

5.3 PRINCIPAL MEASURES TO MANAGE PESTS

The principal measures used in the Plan to achieve the objectives are in four main categories. Each category contains a suite of tools to be applied in appropriate circumstances.

1. Requirement to Act

Land owners and/or occupiers or other persons may be required to act where Plan rules dictate:

(a) pests are to be controlled;

(b) management plans are to be prepared and submitted;

(c) the presence of pests is to be reported;

(d) actions are to be reported (type, quantity, frequency, location, programme completion); or

(e) pests are not to be spread (propagated, sold, distributed), and pathways are to be managed (eg, machinery, gravel, animals).

2. Council Inspection

Inspection by Council may include staff:

(a) visiting properties or doing surveys to determine whether pests are present, or rules and management programmes are complied with, or to identify areas that control programmes will apply to (places of value, exclusion zones, movement control areas);

(b) managing compliance to regulations (rule enforcement, action on default, prosecution, exemptions);

(c) taking limited control actions, where doing so is effective and cost efficient; or

(d) monitoring effectiveness of control.

3. Service Delivery

Council may deliver the service:

(a) where it is funded to do so within a rating district;

(b) on a user pays basis;

(c) by providing control tools, including sourcing and distributing biological agents, or provisions (eg, traps, chemicals).

4. Advocacy and Education

Council may:

(a) provide general purpose education, advice, awareness and publicity activities to land owners and/or occupiers and the public about pests and pathways (and control of them);

(b) encourage land owners and/or occupiers to control pests;

(c) facilitate or fund community and land owners and/or occupier self-help groups and committees;

(d) help other agencies with control, advocacy, and the sharing or sourcing of funding;

(e) promote industry requirements and best practice to contractors and land owners and/or occupiers;

(f) encourage land owners and/or occupiers and other persons to report any pests they find or to control them; or

(g) facilitate or commission research.

5. Collaboration

Otago Regional Council will collaborate with other agencies and land occupier groups, which may include the development of agreements, for the effective management of pests to protect the values of specific sites, corridors and areas.

5.4 RULES

Rules play an integral role in securing many of the pest management outcomes sought by the proposed Plan. They create a safety net to protect land owners and/or occupiers from the effects of the actions or inactions of others where non-regulatory means are inappropriate or do not succeed. Importantly, amendments to the Act arising from the Biosecurity Law Reform Act 2012 now make the Crown bound by those rules identified as **Good Neighbour Rules** (GNR) in regional pest management plans.

Section 73(5) of the Act prescribes the matters that may be addressed by rules, and the need to:

- specify if the rule is to be designated as a 'Good Neighbour Rule';
- specify if breaching the rule is an offence under the Act;
- specify if an exemption to the rule, or any part of it, is allowable or not; and
- explain the purpose of the rule.

Rules can apply to owners and/or occupiers or to a person's actions in general.

The NPD and accompanying guidance notes provide extra requirements to include in the rules of a new GNR. Of particular note, the GNR will:

(a) identify who the GNR applies to - either all owners and/or occupiers, or a specified class of owner and/or occupier;

(b) identify the pest to be managed;

(c) state that the pest must already be present on the owner's and/or occupier's land;

(d) state that the owner and/or occupier of the adjacent or nearby land must, in the view of the management agency, be taking reasonable measures to manage the pest on their land; and

(e) (if relevant) state the particular values or uses of the neighbouring land that the pest's spread affects, and that the GNR is intended to address.

6. PEST DESCRIPTIONS AND PROGRAMMES

Section 6 lists the pests to be managed under the Plan under the programme(s) to which they are assigned. The Plan proposal is required to describe, for each pest listed:

- its adverse effects;
- the reasons for a Plan;
- the objectives to be included in the Plan (see Section 5.1 above);
- the principal measures (including rules) to be used to achieve the objectives (see Section 5.3 above); and
- any other measures that would be reasonable to take to achieve the objectives.

6.1 PESTS TO BE MANAGED UNDER EXCLUSION PROGRAMMES

6.1.1 Introduction

The pests listed in Table 4 below are not known to be present in the Otago region and preventing their establishment is of benefit to the Otago community.

Table 4: Pests to be included in exclusion programmes

Common name	Scientific name
African feather grass	*Pennisetum macrourum*
Chilean needle grass	*Nassella neesiana*
False tamarisk	*Myricaria germanica*
Moth plant	*Araujia hortorum*

6.1.2 Description and adverse effects of pests to be managed under exclusion programmes

The characteristics of each pest to be managed through the exclusion programmes, and threats that they pose, are set out in Table 5 below.

Table 5: Characteristics and threats of pests in exclusion programmes

Description of the pests and adverse effects	
African feather grass is a tussock-like grass forming dense clumps up to 2m high. The leaves are whitish green on top, distinctively ribbed, and dark green in colour underneath. The leaf edges feel rough when touched. The leaf sheath is covered in hairs. African feather grass produces fibrous roots and rhizomes that will form new shoots. It flowers from December to April. The flowers form a long narrow spike, straw yellow in colour, and sometimes have a purplish tinge. The seeds have bristles which allow them to become easily attached to clothing, animal hair or wool. The extensive root system makes it difficult to remove. It produces large amounts of seeds which are easily dispersed by wind and can be carried on clothing. The plant can spread quickly, crowding out other low growing plant species. It can also adversely impact production and economic values. For these reasons, it is included in the Proposal.	 *Source: Weedbusters*

Chilean needle grass is a tufted perennial plant growing up to 1m. Its leaves are bright green and harsh to the touch. Identification within grazed pasture is difficult. The flowers appear in October, and have a purple tinge and ripen into hard, sharp seeds with long twisting tails. These aid the seed in the penetration of the animal's skin and the soil. It also produces viable seeds in its mid and basal stem regions (cleistogenes).

Plants will grow into dense stands and exclude other indigenous and exotic grassland species. It reduces the livestock carrying capacity of pastures due to the production of masses of unpalatable flower stalks. The sharp penetrating seeds injure livestock and result in the downgrading of wool, skins and hides. The seed can move through an animal's skin into body muscles, causing abscesses and the downgrading of carcasses. Lambs are particularly vulnerable to seeds penetrating their eyes causing blindness.

The point of the seed is extremely sharp and hairy so catches onto passing animals, vehicles, and humans. As a result, it can be transported considerable distances to new sites.

Chilean needle grass can cause adverse effects to pastoral production and economic well-being. Due to this it is included in the Proposal.

Source: Environment Canterbury

False tamarisk is a deciduous shrub (to 1.5m) with upright branches and small, narrowly triangular leaves (up to 5.5mm x 1.6mm) held close to its branches that appear bluish-green due to salt secretions on the underside. Small, pink, 5-petalled (3.2mm) flowers are in hanging clusters from January and are followed in February and March by small grey capsules containing seeds (0.7-0.9mm). The seeds are spread by wind and water.

False tamarisk alters the natural environment of stony river beds by reducing the habitat available for birds that nest in braided riverbeds, while also providing cover for the predators that attack them. It is included in the Proposal for these reasons.

Source: A Rebergen

Moth plant is a perennial, broad-leaved, herbaceous climber and can grow to over 5m tall. It has almost-oblong leaves measuring 3-11cm, flowers profusely but fruit set is low. The choko-like fruits, as big as a fist, contain about 400 parachute-like seeds, and mature fruits normally remain for long periods on the vines.

Moth plant can adversely impact environmental and human health values. It climbs over shrubs and small trees, smothering and breaking them down. It also spreads over the ground, smothering native plants of small stature and regenerating seedlings. Both fruits and stems exude a caustic milky sap when crushed or broken. This white latex is sticky, causes skin irritation in susceptible people and is poisonous to humans.

It is included in the Proposal because of these impacts.

6.1.3 Eradication programmes

The management aims and the range of methods to be used to accomplish those aims for the pests to be excluded are set out in Table 6 below. An explanation of alternative means is also provided.

Table 6: Aims and means of achievement for exclusion programmes

Objective, Principal Measures and Rules	
Plan Objective 6.1.3 Over the duration of the Plan, preclude establishment of African feather grass, Chilean needle grass, false tamarisk and moth plant within the Otago region to prevent adverse effects on economic well-being and environmental values[1].	**Principal measures to be used** Otago Regional Council inspection, service delivery, advocacy and education and collaboration described in section 5.3 of the Proposal will be used to achieve Plan Objective 1. Otago Regional Council will be responsible for any incursion control should it arise. Persons will be encouraged to notify Otago Regional Council of the presence, or possible presence, and location within the Otago region of any of these pests. **Alternatives considered** Excluding establishment of pests is a specialised activity involving surveillance systems and the capacity to act quickly to destroy any incursions. The Otago Regional Council has better access to the necessary skills and resources for this than do individual persons. Therefore, relying on or requiring individual action as a means of achieving Plan Objective 1 is not considered a viable alternative. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.
Advice Note Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993.	

[1] For a definition refer to Glossary.

6.2 PESTS TO BE MANAGED UNDER ERADICATION PROGRAMMES

6.2.1 Introduction

There are three pests in the Otago region where the infestation levels are low enough to make eradication possible within the proposed 10-year duration of the Plan. These pests are listed in Table 7 below.

Eradicating Bennett's wallaby will be supported by a collaborative approach involving Otago Regional Council, Environment Canterbury, the Sustainable Farming Fund (led by Landcare Research) and the Ministry of Primary Industries.

In the case of rooks, while preventing rooks from breeding within the duration of the Plan is relatively straightforward, it may take longer to eliminate all remaining birds.

Table 7: Pests to be included in eradication programmes

Common name	Scientific name
Bennett's wallaby	*Macropus rufogriseus rufogriseus,*
Rook	*Corvus frugilegus*
Spiny Broom	*Calicotome spinosa*

6.2.2 Description and adverse effects of pests to be managed under eradication programmes

The characteristics of each pest to be managed through the eradication programmes, and the adverse impacts they cause, are set out in Table 8 below.

Table 8: Characteristics and threats of pests in eradication programmes

Description of the pests and adverse effects
Bennett's wallaby, often called red-necked wallaby, is a marsupial that stands up to 80cm with a tail length around 62cm. Males can reach over 20kg in weight with females reaching 14kg. They have a greyish-brown upper body, pale grey chest and belly and reddish-brown (rufous) colour on the shoulders. Their hind feet and tail are black tipped. Solitary in nature, they commence breeding at about 24 months.  Outside of the Otago region, Bennett's wallabies occupy approximately 450,000 hectares of land in South Canterbury, centred in the Hunter Hills, but including the Two Thumb Range, the Kirkleston and the Grampian mountains. Populations also occur in Kakahu Forest near Geraldine and Pioneer Park south-east of Fairlie. However, despite the efforts in Canterbury to contain this species within that region, ingress into North Otago has occurred. Wallabies are capable of causing significant adverse environmental effects. These include preventing the regeneration of native bush, depletion of forest understorey and possible impacts on water quality. They

also damage tall tussock grasslands, including the inter-tussock vegetation which can become depleted with a consequent increase in bare ground and higher risk of soil erosion.

Adverse economic effects include damage to pasture with anecdotal evidence of complete clearance of cover in places. There is evidence of wallabies grazing on green feed crops, particularly where these border suitable cover. Wallabies also damage exotic forests, particularly at the establishment stage, with damage being more serious in areas bordering native bush or scrub areas.

They are included in the Proposal for the reasons outlined above.

Rooks are large, glossy, purplish-black birds. They have a prominent, powerful beak with whitish patches of skin around the base. Highly gregarious, their presence is announced with a distinctive 'kaah', and as they fly they 'caw' to keep in contact with each other. Rooks forage, often up to 20km daily, from either rookeries or communal winter roosts. During breeding (August-January), all birds live in rookeries, often the same sites as used in the previous breeding seasons.

Rooks show a strong preference for foraging in fields of cereals at all stages of the crop, in recently cultivated land, and in stands of walnut trees. The effect of large flocks of rooks is to severely damage or destroy newly emerging crops and pasture.

There are thought to be less than 40 birds remaining in Otago.

Successful control has been achieved through a coordinated approach at times of favourable weather conditions and limited food sources. Unsuccessful control can lead to rooks becoming wary and much more difficult to control. Rookeries can fragment, and new rookeries establish.

For the above reasons, they are included in the Proposal.

Spiny broom is a much-branched spiny shrub <3m tall. Ridged stems with sharp spines. Dark or grey-green leaves, 3 leaflets hairy underneath and may occur in clusters. Bright yellow flowers followed by flattened seedpods.

An invasive plant that is capable of rapidly colonizing and displacing pasture species or disrupting indigenous ecosystems. Spiny broom is included in the Proposal to prevent impacts on conservation values.

6.2.3 Eradication programmes

The management aims and the range of methods to be used to accomplish those aims for the pests to be excluded are set out in Table 9 below. An explanation of alternative means is also provided.

Table 9: Aims and means of achievement for eradication programmes

Objective, Principal Measures and Rules	
Plan Objective 6.2.3 Over the duration of the Plan, reduce all infestations of Bennett's wallaby, rooks and spiny broom to zero levels within the Otago region to prevent adverse effects on economic well-being and the environment.	**Principal measures to be used** The **requirement to act, council inspection, service delivery, advocacy and education and collaboration** described in section 5.3 of the Proposal will be used to achieve Plan Objective 6.2.3. Otago Regional Council will take responsibility for undertaking the eradication programmes for rooks and spiny broom. For Bennett's wallaby, control will be a shared responsibility between Otago Regional Council and land occupiers. This will allow flexibility in designing the most effective and efficient control mechanisms to be used. While persons are required to report the presence, or possible presence, and location within the Otago region of Bennett's wallaby to the Otago Regional Council, persons will also be encouraged to notify Otago Regional Council of the presence of rooks or spiny broom. **Alternatives considered** Relying solely on occupiers to undertake voluntary action or requiring them to act to prevent adverse effects for Bennett's wallaby, rooks and spiny broom, is not considered viable. This is because spiny broom is difficult to identify and the low levels of infestations may result in many plants not being removed in a timely manner. The uneven spread of invasions places an inequitable burden on those occupiers whose properties are infested. Similarly, an inequitable burden exists for Bennett's wallaby and rooks because of their dispersibility, the need for coordinated control techniques and the uneven distribution of habitat. It is therefore preferable for beneficiaries rather than exacerbators to bear the responsibility for eradication.
Plan Rule 6.2.3.1 Other than under the instruction or supervision of an authorised person, no person shall: (a) poison, capture or trap any rook; or	**Explanation of rule** The purpose of this rule is to prevent humans hindering the control of rooks. The birds are wary and require a settled environment for successful control. They are also easily dispersed.

(b) discharge any firearm at any rook; or (c) discharge any firearm at or within 500m of any tree containing a rookery; or (d) damage, disturb or interfere in any way with a rookery. A breach of this rule or any part thereof creates an offence under section 154N(19) of the Act.	
Plan Rule 6.2.3.2 All occupiers within the Otago region shall destroy all Bennett's wallaby on the land they occupy. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to prevent wallabies from becoming established in the region and causing adverse effects on economic and environmental values. Occupiers are required to control Bennett's wallaby on their land where this can be undertaken quickly and effectively. However, due to their range and low population numbers in Otago, if an occupier observes a Bennett's wallaby on their land, but is not able to destroy it, then they are required to report the sighting immediately to Otago Regional Council in accordance with Rule 6.2.3.3 below. Otago Regional Council will then either be able to support the property occupier to destroy the wallaby or undertake the control works itself.
Plan Rule 6.2.3.3 Any person who detects or suspects the presence of Bennett's wallaby, whether dead or alive, within the Otago region, must immediately report the pest's presence and location to the Otago Regional Council. This is required even if the Bennett's wallaby is destroyed in accordance with the above Rule 6.2.3.2. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to assist Otago Regional Council in detecting the presence of any wallabies in order to help the Council to effectively achieve the eradication programme outcomes.
Plan Rule 6.2.3.4 No person, other than an authorised person, shall keep, hold, enclose or otherwise harbour any Bennett's wallaby. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to prevent humans actively attempting to establish a wallaby population within the Otago region. Exemptions to the rule will cater for case-by-case applications to keep wallabies for public benefit, eg. research, zoos, or any other use. It is in the long-term interests of the region's inhabitants that biodiversity and economic well-being values are protected from the adverse effects brought about by the presence of wallabies.
Advice Note Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Act.	

6.3 PESTS TO BE MANAGED UNDER PROGRESSIVE CONTAINMENT PROGRAMMES

6.3.1 Introduction

There are a number of pests that are well established in the Otago region, but it is still feasible to reduce their present infestation levels through progressive containment programmes. In some cases, the programmes will result in fewer sites infested, or in others, the overall density of the pest will reduce over the proposed 10 year duration period. These pests are listed in Table 10 below.

Table 10: Pests to be included in progressive containment programmes

Common name	*Scientific name*
Plants	
African love grass	*Eragrostis curvula*
Bomarea	*Bomarea caldasii B. multiflora*
Boneseed	*Chrysanthemoides monilifera*
Bur daisy	*Calotis lappulacea*
Cape ivy	*Senecio angulatus*
Nassella tussock	*Nassella trichotoma*
Old man's beard	*Clematis vitalba*
Perennial nettle	*Urtica dioica*
Spartina	*Spartina spp*
White-edged nightshade	*Solanum marginatum*
Wilding conifers[1], contorta, Corsican, Scots, mountain and dwarf mountain pines and larch	*Wilding conifers, Pinus contorta, P. nigra, P. sylvestris, P, uncinata, P, mugo and Larix decidua.*

[1] Refer to the definition of Wilding conifer in the Glossary.

6.3.2 Pests to be managed under progressive containment programmes by occupiers

The characteristics of each of the plant pests to be managed under these programmes, and adverse effects that they pose, are set out in Table 11 below.

Table 11: Characteristics and threats of pests in progressive containment programmes

Description of the pests and adverse effects	
Plants	
Bomarea is a shade tolerant, multi-stemmed vine that arises from short underground rhizomes, which bear numerous tubers. The flowers are clumped in a dense, pendulous bunch of 15 to 20. The flowers are reddish on the outside and yellow with red spots on the inside and develop into capsules about 2cm in diameter. When ripe, they split open to reveal bright fleshy orange seeds, which can be dispersed over long distances by birds. Known to be present, or has been present, across 650 properties in Dunedin City, Otago Peninsula, and West Harbour areas. An ornamental garden escapee, it invades alongside streams and river banks, shrublands, forest edges, forest remnants and intact low canopy forest. The vines grow into the forest canopy, forming large masses, which overtop and smother supporting trees. Large infestations can alter light levels in forests, kill mature trees and prevent seedlings from establishing. For these reasons, it is included in the Proposal.	 
Boneseed is an evergreen shrub reaching up to 3m tall. The leaves are dull green, toothed and covered with a cottony down. Daisy-like flowers are produced in bright yellow clusters from late winter until late summer. Up to 50,000 seeds per plant can be produced in one year and can remain viable for up to 10 years. Seed dispersal occurs locally by birds and by water. Boneseed is established in several sites in and around Dunedin including Portsmouth Drive, Forbury, Port Chalmers, and Aramoana and at Taieri Mouth and Moeraki. A tolerance of dry, infertile soils allows boneseed to colonise and establish easily in coastal areas. While thought to be restricted to frost-free areas, that may not be the case. Absence of grazing animals also aids its establishment. Boneseed's vigorous growth will displace desirable plants, shade out native seedlings and reduce or prevent public access to coastal and beach areas. It is highly flammable and will regenerate prolifically after fire. It can cause adverse effects to environmental and recreational values. For these reasons, it is included in the Proposal.	 

Bur daisy is a small, perennial herb (up to 40cm tall and 1m in diameter) with many fine, green branches. Its green, thin (almost linear) leaves are fairly insignificant. The plant produces small, pom pom-like clusters of bright yellow flowers for most of the year, but are most prolific over the summer. Flowers develop into very hard, brown burs, covered in tiny hooks.

It is found on one 10 hectare block of land at an active site near Georgetown in the Waitaki Valley.

Bur daisy is a serious threat to pastoral farming, particularly causing wool contamination. Left uncontrolled, bur daisy replaces other plant species. It produces many seeds that are quickly spread by stock movement and remain viable for many years.

It is included in the Proposal for the above reasons.

Cape ivy is a scrambling perennial, often forming a dense tangled shrub 2-3m tall, with wiry to woody stems that are sparingly branched. Very fleshy, leathery leaves have 1-3 coarse serrations on each side, and the uppermost leaves are smaller, narrower and occasionally smooth edged. Dense clusters of yellow, ragwort-like flowers (11mm diameter) are produced from March to August, followed by fluffy seeds.

The plant produces many long-lived seeds that are dispersed a long way from parent plants. Moderate growth rate and layering stems, scrambles over shrubs and ground, forms dense, tall thickets. Tolerates salt, wind, drought, semi-shade and damage.

It is found mainly in the Dunedin City and Otago Peninsula areas at 65 active sites.

Wind spreads the seed, and seed and fragments are spread in dumped vegetation and soil movement. Cape ivy smothers ground and low-growing plants to 3m tall, forming dense, long-lived mats that prevent the establishment of native plant seedlings. Coastal, rocky areas, cliffs, bush edges, regenerating lowland forests and inshore islands are at risk from this plant.

For the above reasons, it is included in the Proposal.

Nassella tussock is a tufted, perennial, tussock grass with a swollen stem. Its fine, tightly rolled, light green or yellowish-green leaves feel needle-like and very tough when fingers are run along the leaf. The plants are erect when young but slightly drooping with age and grow up to 70cm high and 80cm wide. Flowering usually commences in October and is characterised by purplish tinge. Each mature plant can produce up to 100,000 seeds per year. Roots are deep, matted and fibrous. They have been found growing 1.7m below the soil surface.

Its presence is confined to the Roxburgh, Alexandra, Cardrona and Waitaki Valley areas.

Nassella tussock adversely affects production values due to reduced pasture quality and it also affects environmental values by displacing native species in tussock grassland. It can be difficult to identify amongst other tussocks.

For these reasons, it is included in the Proposal.

Old man's beard is a deciduous, perennial, climbing, layering vine to 20m tall with very long, woody stems with six prominent ribs (appear as furrows in older vines) and pale, easily rubbed-off bark. Leaves are arranged in opposite pairs on the stems and are made up of five (sometimes three) widely spaced, thin, papery leaflets. Creamy white, fragrant flowers (2-3cm diameter) are produced from December to May, followed by grey, hairy seeds (2-3mm long) with distinctive white plumes (3-4cm long) in dense, fluffy clusters persisting over winter (hence the 'old man's beard'). Native clematis usually has 3 leaflets per stem, smooth stems, and is evergreen.

It is found in exotic forest, native forest remnants, shelterbelts and hedgerows, waste ground, on riverbanks and in gardens. The plant is found on 2600 urban properties across the region and is known to occupy several hundred hectares of rural land, riverbeds and margins across the region.

It is capable of smothering and killing all plants to the highest canopy and prevents the establishment of native plant seedlings. Its seeds are both wind and water borne.

For these reasons, it is included in the Proposal.

Perennial nettle can grow up to 1.5m high. Its stems are woody, its flowers are green and its leaf is a lighter colour green than common stinging nettle (*Urtica urens*). It grows taller than common stinging nettle and it has an extensive system of underground rhizomes, whereas common nettle does not have rhizomes. The seeds are 1-1.5mm long, flat, oval and yellow to greyish in colour. Its underground rhizomes can spread 2.5m in a season.

It is a particular problem in South Otago mainly Balclutha, Lawrence and Clydevale (along the Clutha River).

The sting causes itching and burning which may last for several days. Animals shy away from the plant because of its stinging hairs. The pollen from this plant may cause hay fever.

Perennial nettle's extensive system of underground rhizomes, and its ability to form tall dense stands means it can easily invade paddocks and dominate good

pasture. It tolerates a wide range of conditions, soil types and localities from shade and damp, to very dry. It can be found in pastures, in areas where stock shelter or congregate, waste areas, river banks, roadsides and old house sites.

It is included in the Proposal for the above reasons.

Spartina is a perennial estuarine sward grass, commonly 1m tall and growing in shallow saltwater. It has stiff, upright stems, originating from thick rhizomes. The stems have broad, pointed leaves from their base to the top, where several long fingers contain the seed. New growth occurs from either root pieces or seed. Shoots rapidly sprout from belowground rhizomes, while the seed falls into the water and floats away.

Scattered infestations occur in Pleasant River Estuary, Karitane Estuary, the Lower Taieri Gorge and Catlins Lake.

Colonies of spartina form dense grassy clumps, and these can spread laterally from underground rhizomes, or by over ground side shoots (tillers). Within the estuarine area, vast meadows can form causing a build-up of sediment. This can increase the risk of flooding and also alter the habitat for wading bird species and other estuarine flora and fauna.

For these reasons, it is included in the Proposal.

White-edged nightshade is a quick growing perennial shrub that can grow up to 5m tall. The large woody stems and green oak-shaped leaves are covered in nasty sharp spines. Its leaves have white veins on the upper surface and dense chalky-white hairs on the underside. In summer white or pale mauve flowers bloom in clusters at the end of branches. Green-yellow tomato-shaped berries grow on the ends of prickly stalks.

It is confined to one site near Hampden, but is also known to have existed on Quarantine and Goat Islands in the Otago harbour.

The shrub is well adapted to dry areas. Once established, it forms dense thickets that are impenetrable to stock. It also prevents the establishment of native understory on margins of native bush. White edged nightshade adversely affects economic well-being and environmental values and is included in the Proposal for those reasons.

The management aims and the range of methods to be used to accomplish those aims for the pests to be progressively contained (private occupier responsibility) are set out in Table 12 below. An explanation of alternative means is also provided.

Table 12: Aim and means of achievement for pests in progressive containment programmes

Objective, Principal Measures and Rules	
Plan Objective 6.3.2 Over the duration of the Plan progressively contain and reduce the geographic distribution or extent of bomarea, boneseed, bur daisy, cape ivy, nassella tussock, old man's beard, perennial nettle, spartina and white-edged nightshade at known sites within the Otago region to minimise or prevent adverse effects on economic well-being and the environment.	**Principal measures to be used** Appropriate measures drawn from the suite of activities listed under **requirement to act, council inspection, advocacy and education, and collabortion** described in section 5.3 of the Proposal will be used by Otago Regional Council to achieve Objective 6.3.2. Generally, occupiers will carry out the necessary control work to remove these plant pests. **Alternatives considered** Otago Regional Council could take on the responsibility for these plant pests. However, their extent or infestation densities are such that the logistics of carrying out the control programmes would be difficult to integrate with individual property occupier management requirements. It is also unlikely to be cost effective. This alternative is therefore rejected. Relying on voluntary individual action to minimise adverse impacts of these plant pests would not be effective due to inadequate incentives to do so. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.
Plan Rule 6.3.2.1 All occupiers within the Otago region shall eliminate bomarea infestations on the land that they occupy. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to ensure infestation levels are reduced and threats to environment values are minimised.
Plan Rule 6.3.2.2 All occupiers within the Otago region shall, upon receipt of a written notice from an Authorised Person, eliminate boneseed infestations on the land that they occupy. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed.	**Explanation of rule** The reason for this rule is to ensure infestation levels are reduced and threats to environment values are minimised.

A breach of this rule creates an offence under section 154N(19) of the Act.	
Plan Rule 6.3.2.3 All occupiers within the Otago region shall eliminate bur daisy infestations on the land that they occupy. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to ensure infestation levels are reduced and threats to economic well-being are minimised.
Plan Rule 6.3.2.4 All occupiers within the Otago region shall eliminate cape ivy infestations on the land that they occupy. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to ensure infestation levels are reduced and threats to environment values are minimised.
Plan Rule 6.3.2.5 All occupiers within the Otago region shall eliminate nassella tussock infestations on the land that they occupy. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to ensure infestation levels are reduced and threats to economic well-being and environment values are minimised.
Plan Rule 6.3.2.6 All occupiers within the Otago region shall eliminate old man's beard infestations on the land that they occupy. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to ensure infestation levels are reduced and threats to environment values are minimised.
Plan Rule 6.3.2.7 All occupiers within the Otago region shall eliminate perennial nettle infestations on the land that they occupy. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to ensure infestation levels are reduced and threats to economic well-being are minimised.

Plan Rule 6.3.2.8 All occupiers within the Otago region shall, upon receipt of a written notice from an Authorised Person, eliminate spartina infestations on the land that they occupy. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	Explanation of rule The reason for this rule is to ensure infestation levels are reduced and threats to economic well-being and environment values are minimised.
Plan Rule 6.3.2.9 All occupiers within the Otago region shall eliminate white-edged nightshade infestations on the land that they occupy. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to ensure infestation levels are reduced and threats to economic wellbeing and environment values are minimised.
Advice Note Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993.	

6.3.3 Pests to be managed under progressive containment programmes by Otago Regional Council

The characteristics of each of the plant pests to be managed under these programmes, and adverse effects that they pose, are set out in Table 13 below.

Table 13: Characteristics and threats of pests in progressive containment programmes

Description of the pests and adverse effects
Plants
African love grass is a vigorous, clump-forming, perennial grass up to 1.5m tall. It is densely tufted with narrow leaves (harsh to touch) and usually curly at the tips. The leaves are bright green to blue-green (leaves turn bronze-red after a hard frost). Leaf margins rolled inwards and are usually hairless. It has fibrous roots, up to 50cm deep. The flower heads (panicles) are pyramid-shaped with small, white flowers. Its blackish, olive-purple seeds are attached to arching stems over 1m long. Infestations are limited to 20 active sites across the Otago region. The plant is capable of rapidly invading bare and disturbed sites. Once established, it forms dense stands and suppresses other herbaceous species. It is a prolific seeder, has low palatability for grazing animals and is difficult to detect. For these reasons, it is included in the Proposal. 

The management aims and the range of methods to be used to accomplish those aims for the pests to be progressively contained (ORC responsibility) are set out in Table 14 below. An explanation of alternative means is also provided.

Table 14: Aim and means of achievement for pests in progressive containment programmes

Objective, Principal Measures and Rules	
Plan Objective 6.3.3 Over the duration of the Plan, progressively contain and reduce the geographic distribution or extent of African love grass at known sites (as shown on Map 1 in Appendix 3) within the Otago region to minimise or prevent adverse effects on economic well-being and the environment.	**Principal measures to be used** Appropriate measures drawn from the suite of activities listed under **requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Proposal will be used by Otago Regional Council to achieve Objective 6.3.3. Generally, Otago Regional Council will carry out the necessary control work to remove African love grass. It is useful however for occupiers to report the presence of African love grass at sites outside of the known sites. **Alternatives considered** Relying on occupiers to undertake voluntary action or requiring them to act to prevent

	adverse effects caused by African love grass is not considered viable. African love grass is difficult to identify and the low levels of infestations may result in many plants not being removed in a timely manner. It is therefore preferable for beneficiaries rather than exacerbators to bear the responsibility for this programme. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.

Advice Note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993.

6.3.4 Progressive containment programme for wilding conifers contorta, Corsican, Scots, mountain and dwarf mountain pines and larch

The characteristics of wilding conifers to be managed under this programme, and adverse effects that they pose, are set out in Table 15 below.

Table 15: Characteristics and threats of wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and larch

Description of the pest and adverse effects
Wilding conifers can have significant impacts on native ecosystems, particularly those with low-stature vegetation[2]. Wilding conifers grow faster and taller than low-stature native plants and so can shade out many of these species. Where there is dense wilding conifer growth, this can lead to local extinction of native plant communities, the drying of wetlands and riparian areas, and resulting impacts on native fauna through the loss of habitat. Soil and soil fauna are also altered when wilding conifers replace native ecosystems. Otago's iconic landscape is vulnerable to the invasion of wilding conifers. If not controlled, they would significantly change the landscape and impact on our recreational, hydrological and conservation values. Particularly at risk is our high country and tussock grasslands. The growing problem has been recognised for some years, and as a result, the Wakatipu Wilding Conifer Control Group and the Central Otago Wilding Control Group established themselves solely to fight wilding conifers. A National Wilding Conifer Control Programme has been developed and funded by government agencies, landowners, and local communities to address infestations. The extent within Otago ranges from very dense wilding infestations in the Wakatipu area, through to very low wilding conifer numbers scattered over thousands of hectares. Control efforts to date have been very successful where the work has been carried out, but will require an ongoing effort for many years to come in follow-up work, and in areas where control is yet to be undertaken. Most wilding conifer species do not pose a significant threat to established native forests, however some species are adapting to new areas and in particular, Douglas fir has a higher shade tolerance than other introduced conifer species and can consequently spread into shrublands, regenerating native forest and mature forest where there are canopy gaps and a relatively sparse understory.

[2] Indigenous ecosystems at particular risk from wilding conifer invasion include: tussock and other indigenous grasslands, alpine ecosystems, subalpine and dryland scrub and shrublands, frost-flats, wetlands, turf communities, geothermal areas, dunelands, ultramafic/serpentine areas, rockfields and herbfields, riparian areas, coastal margins, bluffs and cliffs.

Wilding conifers can adversely affect amenity and landscape values, particularly where the valued landscapes are characterised by extensive low-stature vegetation such as high country tussock grasslands. These landscapes are important for tourism and large-scale landscape changes could impact on this. Dense wilding conifer spread can impact water availability lead to the blocking and/or changing of valued views and vistas, and can impede access to, and enjoyment of, recreational areas.

In areas where there is long-term, seasonal soil moisture deficits, dense wilding conifers can contribute to reductions in surface water flows, potentially impacting on water availability and aquatic ecosystems. Wilding conifers can also increase the risk posed by wild fires.

In areas of extensive pastoral farming, wilding conifer infestations adversely impact economic well-being by reducing available grazing land and limiting future land use options due to the high costs of control.

Wilding conifers are included in this Proposal for the above reasons.

Contorta (lodgepole) pine, Corsican pine, Scots pine, dwarf mountain pine, mountain pine and larch

In addition to the adverse effects list above for the wilding offspring of these conifers, wilding conifers often occur as a result of seed spread from planted conifer trees. It can be difficult to successfully control or manage the spread of wilding conifers over the long term if the seed source is not removed or appropriately managed and contained. This set of conifers has very limited commercial value and they are also highly invasive. It is therefore appropriate to specify these organisms as pests in their own right, in addition to being pests under the wilding conifer definition in their naturally regenerated state. It would effectively prevent new plantings of these species, and ensure where these species are cleared using publicly funded control operations that they stay clear.

Contorta in particular, is the most invasive introduced conifer species and represents a significant proportion of all wilding conifers and original sources of wilding conifer spread.

Existing planted conifers less than 1ha

Existing contorta shelter belts and other conifer shelterbelts are often used to provide shelter for stock.

It can be difficult to successfully control or manage the spread of wilding conifers over the long-term if the existing planted seed sources are not removed or appropriately managed and contained. The Plan does not include rules requiring the removal of existing shelter belts and other existing planted conifers less than 1ha. Rather, transition arrangements for their long-term removal, starting with the removal of contorta shelter

belts, are outlined in the proposed Biosecurity Strategy attached to this Proposal.

The management aims and the range of methods to be used to accomplish those aims for the pests to be progressively contained are set out in Table 16 below. An explanation of alternative means is also provided.

Table 16: Aim and means of achievement for wilding conifer progressive containment programmes

Objective, Principal Measures and Rules	
Plan Objective 6.3.4 Over the duration of the Plan, progressively contain and reduce the geographic extent of wilding conifers[3] within the Otago Region to minimise adverse effects on economic well-being and the environment. This may involve the destruction of contorta, Corsican, Scots, mountain and dwarf mountain pines and larch.	**Principal measures to be used** Appropriate measures drawn from the suite of activities listed under **requirement to act, collaboration, council inspection, service delivery, advocacy and education** described in section 5.3 of the Proposal may be used by Otago Regional Council to achieve Plan Objective 6.3.4. Plan Objective 6.3.4 is also achieved under The National Wilding Conifer Control Programme – a collaborative funding model for wilding conifer control. Parties to this programme could include the Ministry for Primary Industries, Department of Conservation, Land Information New Zealand, Otago Regional Council and private land holders. **Alternatives considered** Relying on voluntary action of individuals to achieve Plan Objective 6.3.4 is not considered viable due to the nature of the pest and the lack of incentives for voluntary action. Otago Regional Council could take on the responsibility for region-wide wilding conifer control. However, the extent of infestations is such that it is beyond the financial resources of the ratepayers. Furthermore, the consequences of occupiers no longer owning the problem could lead to over-optimistic expectations on the part of both occupiers and the wider community. This alternative is therefore rejected. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.

[3] Wilding conifers are any introduced conifer tree, including (but not limited to) any of the species listed in Table 3, established by natural means unless it is located within a forest plantation, and does not create any greater risk of wilding conifer spread to adjacent or nearby land than the forest plantation that it is a part of. For the purposes of this definition, a forest plantation is an area of 1ha or more of predominantly planted trees. This also excludes existing planted conifers of less than 1ha, such as windbreaks and shelterbelts existing before March 2019.

Plan Rule 6.3.4.1	Explanation of rule
Within the Otago Region occupiers shall destroy all wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch present on land that they occupy prior to cone bearing, if – a) the wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines, and/or larch are located within an area which has had control operations carried out to destroy wilding conifers since January 2016; and b) the control operations were publicly funded (either in full or in part). A breach of this rule creates an offence under section 154N(19) of the Act.	The purpose of this rule is to ensure that new infestations of wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch are prevented from re-establishing at sites where wilding conifers have previously been destroyed through publicly funded control operations.
Plan Rule 6.3.4.2	**Explanation of rule**
Within the Otago Region occupiers shall destroy all wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch present on land they occupy within 200m of an adjoining property boundary prior to cone bearing, if – a) wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch have previously been destroyed through control operations on the adjoining property; and b) the control operations on the adjoining property were within 200m of the boundary and were undertaken since January 2016. A breach of this rule or any part thereof creates an offence under section154N(19) of the Act.	Over the duration of the Plan, to ensure that the spread of wilding conifers contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch does not cause unreasonable costs to the occupiers of adjoining properties, where wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch have previously been destroyed through control operations on the adjoining property. Any action pertaining to non-compliance will only be initiated upon a complaint in writing from the adjoining affected occupier.
Plan Rule 6.3.4.3 **Note: This is designated a Good Neighbour Rule** Within the Otago Region occupiers shall destroy all wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch present on land they occupy within 200m of an adjoining property boundary prior to cone bearing where – a) the adjoining land has previously been cleared through control operations since January 2016; and b) the occupier of that adjoining land is taking reasonable steps to manage wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch on their land, within 200m of the boundary. A breach of this rule creates an offence under section 154N(19) of the Act	**Explanation of rule** Over the duration of the Plan, to ensure that the spread of wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch does not cause unreasonable costs to the occupiers of adjoining properties, where wilding conifers have previously been destroyed through control operations on the adjoining property and the adjoining occupier is undertaking active wilding conifer management. Any action pertaining to non-compliance will only be initiated upon a complaint in writing from the adjoining affected occupier. The rule is required in addition to Plan Rule 6.4.3.2 as the National Policy Direction requires that before a rule can be identified as a good neighbour rule, the Otago Regional Council must be satisfied that the adjacent occupier is taking reasonable measures to manage the pest or its impacts.

Advice Notes

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Act.

Occupiers may make an application to the Otago Regional Council for an exemption from the rules under section 78 of the Biosecurity Act 1993. This section should be referred to in full in the Act.

6.4 PESTS TO BE MANAGED UNDER SUSTAINED CONTROL PROGRAMMES

6.4.1 Introduction

There are a number of pests that are securely established in the Otago region and therefore containing their presence is the most appropriate form of management. In some cases, spread from infested areas across property boundaries to neighbouring areas that are clear or being cleared will be prevented eg. gorse or nodding thistle. For others it is a case of holding population levels to acceptable limits eg. feral rabbits. The pests that are subject to sustained control programmes are listed in Table 17 below.

Table 17: Pests to be included in sustained control programmes

Common name	*Scientific name*
Plants	
Broom (common and montpellier)	*Cytisus scoparius Teline monspessulana*
Gorse	*Ulex europeaus*
Nodding thistle	*Carduus nutans*
Ragwort	*Senicio jacabaea*
Wild Russell lupin	*Lupinus polyphyllus*
Animals	
Feral rabbits	*Oryctolagus cuniculus*

6.4.2 Description and adverse effects of pests to be managed under sustained control programmes

The characteristics of each of the plant pests to be managed under these programmes, and adverse effects that they pose, are set out in Table 18 below.

Table 18: Characteristics and threats of pests in sustained control programmes

Description of the pests and adverse effects	
Broom (common) is a leguminous, branched perennial shrub up to 2.5m tall with bright yellow flowers. Stems are green and woody, five ribbed and hairless. Montpellier broom, while somewhat smaller in stature, except for slightly smaller yellow flowers, is very difficult to distinguish from common broom. They are therefore treated together. Dark ripened seedpods explode during summer, propelling hard seed up to 5m from the parent plant. The seed may also land on stock, particularly sheep, or in water and be transported much further. Seed can remain viable for many years (>50 years) in soil and gravel. Transport of such infested material can contribute to spread over longer distances.	

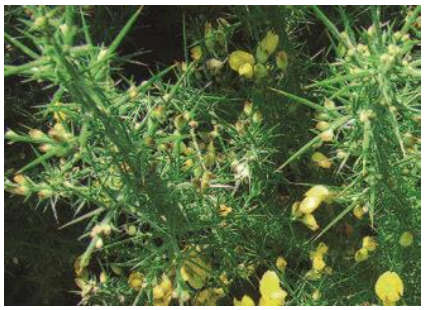
Broom is capable of establishing on land throughout the region. However, large areas of Central Otago and the Queenstown Lakes are predominantly clear of infestations. Where it is present, density varies from light to heavy depending upon the intensity of grazing management. It is most prevalent on lightly grazed or non-grazed areas.

Broom seedlings are unable to compete with productive pasture. Where insufficient grazing pressure is exerted, the plants can establish dense stands that can shade out most other herbaceous species and destroy pasture.

Provided taller tree species can become established within broom colonies, they will eventually displace broom.

Broom is included in the Proposal for the above reasons.

Gorse is a sharply spinous, woody, deeply rooted, leguminous perennial shrub. It grows up to 4m tall with thick stems. Seeds can be ejected up to 5m from pods and the plant may seed twice a year. Seed may survive in the soil for more than 50 years.



Gorse is capable of establishing on land throughout the region. However, large areas of Central Otago and the Queenstown Lakes are predominantly clear of infestations. Density varies from light to heavy depending upon the intensity of grazing management. It is most prevalent on lightly grazed and non-grazed areas.

Gorse forms dense thickets that prevent stock from grazing infested areas. Seed may be spread by water, birds, road-making, gravel extractions, animals and machinery.

It is generally perceived as a threat to pastoral values and low stature indigenous vegetation. However, if left undisturbed and in the presence of a seed source, tall indigenous vegetation particularly can overtop and suppress gorse.

Gorse is included in the Proposal primarily because the adverse effects, overall, outweigh its beneficial attributes.

Nodding thistle is an annual or biennial thistle that grows from an over-wintering rosette and is similar to the Scotch thistle, although more erect and spiny. Its flowering stems grow up to 1.5m high bearing large crimson flower heads that droop or “nod” when mature.

Nodding thistle is found on sheep farming areas in many parts of Otago. A single mature plant is capable of producing up to 10,000 seeds. It is not readily grazed because of its spiny foliage. Single rosettes can occupy an area greater than one square metre, so large infestations can seriously reduce the stock carrying capacity of affected pasture. The plant is resistant to drought and seed can remain viable for up to 20 years.

It is included in the Proposal for these reasons.

Ragwort is an erect biennial or perennial herb that is commonly 45-60cm tall but can grow to almost 2m high. It produces bright yellow flowers in clusters, from November to April.

The plant is toxic to grazing cattle, deer and horses because its poisonous alkaloids cause liver cirrhosis, photosensitisation, jaundice and wasting. Poisoned animals may take some months to die. They do however electively avoid grazing it.

Sheep will eat Ragwort without any apparent adverse effects, unless they are continually exposed to it in large quantities, or if they are not used to feeding on it.

It can dominate pasture once established, almost completely excluding other pasture species in the worst instances, and significantly reducing the amount of grazing available to stock. Also, the plant is invasive in riverbeds, disturbed forest and shrubland, coastal areas, bare land and other short-stature vegetation types. It forms dense stands in these areas as it does in pasture. However, it usually disappears when a canopy forms, which decreases light levels reaching the ground layer.

For these reasons, it is included in the Proposal.

Russell lupin is a quick growing perennial herb, up to 1m tall, with multiple, erect, hairy stems with clusters of 8-15 leaflets (3-13 x 1-3cm) that are usually hairless above and silky below. Produces an erect flowerhead spike (15-60cm long) bearing many slightly scented and multiple coloured flowers (12-20mm) from September to February. The plant produces a large amount of mottled dark brown seed that are spread mainly by water and also by humans distributing them along roadsides. The seed remains viable for many years.

Russell lupin tolerates wind, warm to cold, flooding and drought, low fertility (fixes nitrogen) and fire. Intolerant of moderate shade. It rapidly invades shingly braided river systems and the dense, self-replacing stands provide hiding places for predators of the (often endangered) birds that would usually nest safely on these bare islands. The dense infestations also interfere with water flow along these rivers, changing the ecosystem for the birds that live there. Increased soil nitrogen may induce change in species composition in plant communities from low fertility species to weed species. Causes sand and gravel to build up, altering shape of rivers and contributing to flooding and erosion. Increased cover may prevent some birds (eg. dotterels, wrybills) nesting, and may increase predation by cats, mustelids, etc. on birds.

Disturbed lowland and sub-alpine shrubland, short tussock-land and wetlands are susceptible to invasion.

For these reasons, wild Russell lupin is included in the Proposal.

6.4.3 Sustained control programme for broom and gorse

The management aims and the range of methods to be used to accomplish the aims for broom to be managed under the sustained control programme in Otago is set out in Table 19 below. An explanation of alternative means is also provided.

Table 19: Aim and means of achievement for sustained control of broom

Objective, Principal Measures and Rules	
Plan Objective 6.4.3 Over the duration of the Plan, sustainably control broom and gorse to ensure land that is free of, or being cleared of, broom and gorse does not become infested, to prevent adverse effects on production values and economic well-being.	**Principal measures to be used** Appropriate measures drawn from the suite of activities listed under **requirement to act, council inspection, collaboration, service delivery, advocacy and education, and collaboration** described in section 5.3 of the Proposal may be used by Otago Regional Council to achieve Plan Objective 6.4.3. Generally, occupiers will be responsible for control of broom although Otago Regional Council may provide some assistance e.g. sourcing and releasing biological control agents. **Alternatives considered** Relying on voluntary action of individuals to achieve Plan Objective 6.4.3 is not considered viable due to the nature of the pest and the lack of incentives for voluntary action. Otago Regional Council could take on the responsibility for region-wide control. However, the extent of infestations is such that it is beyond the financial resources of the ratepayers. Furthermore, the consequences of occupiers no longer owning the problem could lead to over-optimistic expectations on the part of both occupiers and the wider community. This alternative is therefore rejected. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.
Plan Rule 6.4.3.1 All occupiers within the Gorse and Broom Free Areas as shown on Maps 3 in Appendix 3 shall, eliminate all broom infestations on the land that they occupy. This rule shall not have legal effect for the New Gorse and Broom Free Areas as illustrated on Map 2 in Appendix 3 until March 2024. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to maintain the past investment by occupiers in establishing areas clear of broom within properties. Otago Regional Council will proactively support all land occupiers within the New Gorse and Broom Free Areas to clear these areas prior to Rule 6.4.3.1 having legal effect in 2024.

Plan Rule 6.4.3.2 **Note: This is designated a Good Neighbour Rule** All occupiers outside of the Gorse and Broom Free Areas on rural zoned land shall eliminate broom infestations on their land within 10m of the adjoining property boundary where the occupier of the adjoining property is eliminating broom infestations within 10m of that boundary with the intention of protecting their economic well-being. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to manage the spread of broom causing unreasonable costs to an adjacent occupier where active broom management is being undertaken by that land occupier. Any action pertaining to non-compliance will only be initiated upon a complaint in writing from the adjoining affected occupier.
Plan Rule 6.4.3.3 All occupiers within the New Gorse and Broom Free Areas as shown on Map 2 in Appendix 3 shall eliminate all gorse infestations on the land that they occupy. This rule shall not have legal effect for the New Gorse and Broom Free Areas as shown on Map 2 in Appendix 3 until March 2024. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to maintain the past investment by occupiers in establishing areas clear of gorse within properties. Otago Regional Council will proactively support all land occupiers within the New Gorse and Broom Free Areas to clear these areas prior to Rule 6.4.3.3 having legal effect in 2024.
Plan Rule 6.4.3.4 **Note: This is designated a Good Neighbour Rule** All occupiers outside of the Gorse and Broom Free Areas on rural zoned land shall eliminate gorse infestations on their land within 10m of the adjoining property boundary where the occupier of the adjoining property is eliminating gorse infestations within 10m of that boundary with the intention of protecting their economic well-being. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to manage the spread of broom causing unreasonable costs to an adjacent occupier where active broom management is being undertaken by that land occupier. Any action pertaining to non-compliance will only be initiated upon a complaint in writing from the adjoining affected occupier.

6.4.4 Sustained control programmes for nodding thistle and ragwort

The management aims and the range of methods to be used to accomplish the aims for nodding thistle and ragwort to be managed under the sustained control programme in Otago is set out in Table 20 below. An explanation of alternative means is also provided.

Table 20: Aims and means of achievement for the sustained control of nodding thistle and ragwort (boundary control)

Objective, Principal Measures and Rules	
Plan Objective 6.4.4 Over the duration of the Plan, sustainably control nodding thistle and ragwort on rural zoned land within specified distances of property boundaries throughout the Otago region to prevent their spread in order to minimise adverse effects on production values and economic well-being.	**Principal measures to be used** Appropriate measures drawn from the suite of activities listed under **requirement to act, collaboration, council inspection, advocacy and education** described in section 5.3 of the Proposal will be used by Otago Regional Council to achieve Plan Objective 6.4.4. **Alternatives considered** Relying on voluntary action of individuals to achieve Plan Objective 6.4.4 is not considered viable due to the nature of the pest and the lack of incentives for voluntary action. Otago Regional Council could take on the responsibility for controlling the spread of nodding thistle and ragwort. However, the extent of the infestations are such that the logistics of carrying out the control programmes would be difficult to integrate with individual property occupier management requirements. It is also unlikely to be cost effective. Furthermore, the consequences of occupiers no longer owning the problem could lead to over-optimistic expectations on the part of both occupiers and the wider community. This alternative is therefore rejected. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.
Plan Rule 6.4.4.1 **Note: This is designated a Good Neighbour Rule** All occupiers in the Otago region on rural zoned land shall eliminate nodding thistle infestations on their land within 100m of the adjoining property boundary where the occupier of the adjoining property is eliminating nodding thistle infestations within 100m of that boundary. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act	**Explanation of rule** The reason for this rule is to manage the spread of nodding thistle causing unreasonable costs to an adjacent occupier who is undertaking active nodding thistle management within 100m of their property boundary. Any action pertaining to non-compliance will only be initiated upon a complaint from the adjoining affected occupier.
Plan Rule 6.4.4.2 **Note: This is designated a Good Neighbour Rule** All occupiers in the Otago region on rural zoned land shall eliminate ragwort infestations on their land within 50m of the adjoining property boundary where the occupier of the adjoining	**Explanation of rule** The reason for this rule is to manage the spread of ragwort causing unreasonable costs to an adjacent occupier who is undertaking active ragwort management within 50m of their property boundary.

property is eliminating ragwort infestations within 50m of that boundary. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set viable seed. A breach of this rule creates an offence under section 154N(19) of the Act	Any action pertaining to non-compliance will only be initiated upon a complaint from the adjoining affected occupier.
Advice Note Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Act.	

6.4.5 Sustained control programme for Russell lupin

The management aims and the range of methods to be used to accomplish the aims for Russell lupin to be managed under the sustained control programme in Otago as set out in Table 21 below. An explanation of alternative means is also provided.

Table 21: Aims and means of achievement for the sustained control of wild Russell lupin

Objective, Principal Measures and Rules	
Plan Objective 6.4.5 Over the duration of the Plan, sustainably control the extent of wild Russell lupin within specified distances from waterways to preclude establishment of wild Russell lupin and to prevent adverse effects on environmental values.	**Principal measures to be used** Appropriate measures drawn from the suite of activities listed under **requirement to act, council inspection, service delivery, advocacy and education, and collaboration** described in section 5.3 of the Plan will be used to achieve Plan Objective 6.4.5. **Alternatives considered** Relying on voluntary action of individuals to achieve Plan Objective 6.4.5 is not considered viable due to the nature of the pest and the lack of incentives for voluntary action. Otago Regional Council could take on the responsibility for controlling the spread of wild Russell lupin. However, the extent of the infestation is such that it is also unlikely to be cost effective and is beyond the financial resources of Otago Regional Council. Furthermore, the consequences of occupiers no longer owning the problem could lead to over-optimistic expectations on the part of both occupiers and the wider community. This alternative is therefore rejected. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.
Plan Rule 6.4.5.1 **Note: This is a pest agent rule**	**Explanation of rule** The reason for this rule is to prevent wild Russell lupin establishing within the specified distances

On rural zoned land within the Otago region, no wild Russell lupin shall be planted within: (a) 200m of the outer gravel margin of a braided river as measured at the time of planting, or if there is no outer gravel margin beyond the active channel, 200m from the edge of the active channel of a braided river; (b) 50m from any non-braided river; (c) 10m from any artificial watercourse; or (d) 10m from an adjoining property boundary. A breach of this rule creates an offence under section 154N(19) of the Act. For the purpose of this rule: **Artificial watercourse** means a watercourse that is created by human action. It includes an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal channel. It does not include artificial swales, kerb and channelling or other watercourses designed to convey stormwater. **Braided river** means any river with multiple, successively divergent and rejoining channels separated by gravel islands. **Non-braided river** means a continually or intermittently flowing body of fresh water that is not a braided river; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity generation, and farm drainage canal). **River** means a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity generation, and farm drainage canal).	from waterways and adjoining property boundaries.
Plan Rule 6.4.5.2 All occupiers on rural zoned land within the Otago region shall eliminate all wild Russell lupin within: (a) 200m of the outer gravel margin of a braided river as measured at the time of planting, or if there is no outer gravel margin beyond the active channel, 200m from the edge of the active channel of a braided river; (b) 50m from any non-braided river; (c) 10m from any artificial watercourse; or	**Explanation of rule** The reason for this rule is to prevent wild Russell lupin establishing and seeding within the specified distances from waterways and adjoining property boundaries.

(d) 10m from an adjoining property boundary. For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to set seed. A breach of this rule creates an offence under section 154N(19) of the Act.	

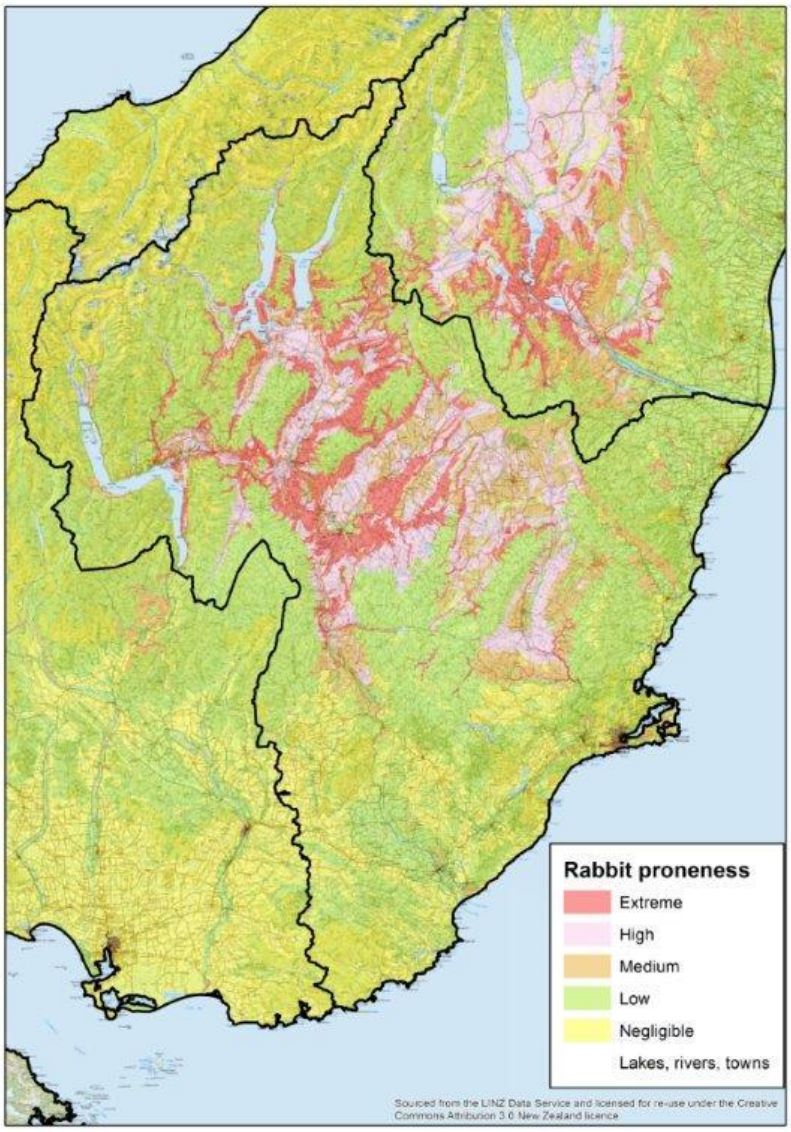
6.4.6 Sustained control programme for feral rabbits

The characteristics of feral rabbits to be managed under sustained control, and adverse effects that they pose, are set out in Table 22 below.

Table 22: Characteristics and threats of feral rabbits under a sustained control programme.

Description of the pests and adverse effects
Feral rabbits (wild European) are a small mammalian herbivore, grey-brown (or sometimes black) in colour ranging in length from 34 to 50cm and weighing approximately 1.1 to 2.5kg. They have a high capacity for reproduction and females may be pregnant for 70% of a year. Early-born does may breed in their natal year. They can produce a total of 20 – 50 young per adult doe. Females are also capable of adjusting litter sizes to food supply, so rabbit populations are capable of rebounding quickly from natural disasters or control pressures. The rabbits' preferred habitat is grassland below about 1000m altitude, with free draining soils, sunny aspect, and less than 1000mm annual rainfall. They are common throughout the rural areas of the region with such habitat but may also be found in and around lifestyle blocks, rural townships and urban areas. Refer to the rabbit proneness map below (Figure 5) for more information on their distribution in Otago. Rabbit Haemorrhagic Disease (RHD) is capable of significantly reducing population levels. However, over time, surviving populations become increasingly resistant to the disease. It is therefore important that alternative control techniques continue to be employed by land occupiers in tandem with RHD to minimise resistant build up. A further RHD strain (K5) has been released during the autumn of 2018. In general, rabbits compete for pasture and crops with other farm animals and cause land degradation. Rabbits also graze on native vegetation, impacting ecological values. 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. Feral rabbits are included in the Proposal for these reasons.

Figure 5: Rabbit proneness in Otago



The management aim and the methods to be used to achieve that aim are set out in Table 23 below.

Table 23: Aim and means of achievement for sustained control of feral rabbits

Objective, Principal Measures and Rules	
Plan Objective 6.4.6	**Principal measures to be used**
Over the duration of the Plan, sustainably control feral rabbits to ensure population levels do not exceed Level 3 on the Modified McLean Scale[4] in order to minimise adverse effects on production and environmental values within the Otago region.	Appropriate measures drawn from the suite of activities listed under **requirement to act, council inspection, advocacy and education** described in section 5.3 of the Proposal will be used by Otago Regional Council to achieve Objective 6.4.6.

[4] Refer Appendix 2 for Modified McLean Scale.

	Exemptions may be granted in appropriate curcumstances where these meet the criteria in accordance with section 78 of the Act. **Alternatives considered** Relying on voluntary action of individuals to achieve Plan Objective 6.4.6 is not considered viable due to the nature of the pest and the lack of incentives for voluntary action. Otago Regional Council could take on the responsibility for region-wide rabbit control. However, the extent of rabbit infestation is such that the logistics of carrying out the control programmes would be difficult to integrate with individual property occupier management requirements. It is also unlikely to be cost effective. Furthermore, the consequences of occupiers no longer owning the problem could lead to over-optimistic expectations on the part of both occupiers and the wider community. This alternative is therefore rejected. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.
Plan Rule 6.4.6.1 An occupier within the Otago region shall control feral rabbit densities on the land they occupy to at or below Level 3 on the Modified McLean Scale. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to maintain the population levels of feral rabbits to that which prevents adverse effects on the economic values of occupiers, and in so doing, prevent the possible adverse effects on wider environmental values.
Plan Rule 6.4.6.2 **Note: This is designated a Good Neighbour Rule** An occupier within the Otago region shall, upon receipt of a written direction from an Authorised Person, control feral rabbit densities on their land to at or below Level 3 on the Modified McLean Scale within 500m of the adjoining property boundary where the occupier of the adjoining property is also controlling feral rabbit densities at or below Level 3 on the Modified McLean Scale within 500m of the boundary. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to manage the spread of feral rabbits causing unreasonable costs to the adjacent occupier where active feral rabbit management is being undertaken by that occupier. Any action pertaining to non-compliance will only be initiated upon a complaint from the adjoining affected occupier.
Plan Rule 6.4.6.3 Other than under the instruction or supervision of an Authorised Person, no person shall discharge a firearm within or across a property where a control operation involving bait is being planned or undertaken on the property to manage feral rabbits.	**Explanation of rule** The purpose of this rule is to prevent human interference prior to any necessary control operations by Otago Regional Council.

A breach of this rule creates an offence under section 154N(19) of the Act.

6.5 PESTS TO BE MANAGED UNDER SITE-LED PROGRAMMES

6.5.1 Introduction

Site-led programmes seek to manage pests whose presence, at or nearby, threaten the values that are special to particular sites (protecting the values at the place). The sites themselves can be determined in two main ways. In the first instance, there are sites within the Otago region that have already been identified through a variety of ways at a district or local scale as having particular values, primarily non-production. In the second instance, there is opportunity for individuals or community groups to promote and pursue further sites that they consider hold values of importance to those people.

Sites managed through site-led programmes may range in extent from small areas within a property to larger areas covering thousands of hectares. Likewise, their values can be threatened by individual or multiple organisms and pest management regimes specifically tailored to each site will be necessary.

This Proposal identifies three sites that manage a range of species encompassing the geographic areas of the Otago Peninsula, West Harbour – Mt.Cargill, and Quarantine and Goat Islands (Map 3 of Appendix 3).

The proposal also identified a site-led programme for the management of lagarosiphon in specified lakes and rivers (Map 4 of Appendix 3).

6.5.2 Site-Led Programmes

The **Otago Peninsula** is 9,000ha in area and stretches parallel to the Dunedin mainland along the southeast of the Otago Harbour. It joins to the mainland at its southwest end by a narrow isthmus of approximately 1.5km. The Otago Peninsula is home to a number of rare and threatened indigenous species including the yellow-eyed penguin, the New Zealand Sealion, the northern Royal Albatross, and is home to many other indigenous bird, reptile and invertebrate species. Its forest remnants are important habitats.

The **West Harbour – Mt. Cargill area** is an area of approximately 12,500ha north of Dunedin City following the western side of the Otago Harbour, extending from Mt. Cargill and Ravensbourne to Blueskin Bay, Long Beach and Aramoana. This area is home to 11 different ecosystem types containing diverse indigenous flora and fauna. This includes threatened and at-risk plant species, including nationally critical, endangered and at-risk bryophytes. The area is home to rare and threatened indigenous species including the yellow-eyed penguin, the New Zealand sea lion, and many other at-risk and threatened shore birds. It is also home to many other indigenous bird, reptile and invertebrate species, including the South Island kākā, South Island robin, and South Island fern bird.

Quarantine and Goat Islands / Kamau Taurua and Goat Island are located within the Otago Harbour between Port Chalmers within the West Harbour – Mt. Cargill area on the western side of the harbour and Portobello on the Otago Peninsula on the eastern side of the harbour. The island provides a stepping stone between these two areas.

The **Lagarosiphon** site-led programme supports the management of lagarosiphon within Lake Wanaka and the Kawarau River, Lake Dunstan and to preclude the re-establishment of lagarosiphon in Lake Wakatipu, and to prevent spread from infested waterways to protect environmental, recreational and amenity values.

More information on these site-led areas and Otago Regional Council's role in their management is available in the proposed Biosecurity Strategy.

The following organisms are classified as pests specifically for the sites outlined above, some at only one site, some at two and the rest at all three sites.

Table 24: Pests and their applicable sites (*) being managed under site-led programmes

Common name	*Scientific name*	Otago Peninsula	West Harbour – Mt. Cargill	Quarantine and Goat Islands	Lagarosiphon Management Areas
Plants					
Banana passionfruit	*Passiflora tripartita var mollissima* *P. tripartita var azuayansis* *P. tarminiana* *P. pinnatistipula* *Passiflora x rosea* *P. caerulea*	*	*		
Chilean flame creeper	*Tropaeolum speciosum*	*	*		
Darwin's barberry	*Berberis darwinii*	*	*		
Sycamore	*Acer pseudoplatanus*	*	*		
Gunnera	*Gunnera tinctoria*	*			
Tradescantia (wandering willie)	*Tradescantia fluminensis*	*	*		
Lagarosiphon	*Lagarosiphon major*				*
Animals					
Bennett's wallaby	*Macropus rufogriseus rufogriseus*	*	*	*	
Feral cat	*Felis catus*	*	*	*	
Feral deer (incl. hybrids)	*Cervus elaphus, C. nippon, C. dama*	*	*	*	
Feral goat	*Capra aegagrus hircus*	*	*	*	
Feral pig	*Sus scrofa*	*	*	*	

Hedgehog	*Erinaceous europaeus*	*	*	*
Mustelids (ferret, stoat, weasel)	*Mustelo furo, M. ermine, M. nivalis*	*	*	*
Possum	*Trichosurus vulpecula*	*	*	*
Rat (Norway, ship and Kiore)	*Rattus norvegicus, R. rattus* R. exulans			*

Note – In addition, if any other pest contained in this Proposal is present at any site, occupiers remain responsible for their management in accordance with the respective programmes outlined earlier in Chapter 6 unless the site-led programme determines otherwise.

6.5.3 Description and adverse effects of pests to be managed under site-led programmes

The characteristics of each of the pests to be managed under these programmes, and adverse effects that they pose, are set out in Table 25 below.

Table 25: Characteristics and threats of pests in site-led programmes

Description and adverse effects
Plants
Banana passionfruit species are virtually all identical in their characteristics and appearance. They are tall, climbing vines that grow in forest and shrubland margins, stream sides, coastline cliffs, consolidated sand dunes and in domestic gardens. The plants produce large pink tubular flowers throughout the year. These develop into oval fruit that turn yellow to orange-yellow when ripe. This plant produces fruit that is eaten and spread by animals, birds and humans. It is capable of smothering other plants and dominating the canopy. It grows rapidly and its stems will layer. Due to this it poses adverse effects to environmental and biodiversity values of the region. For these reasons, it is included in the Proposal. 

Chilean flame creeper is a climbing, hairless perennial, with a thick rootstock. It has slender stems with curling tendrils (<7cm long) and watery sap. The dull, soft, light green leaves have five leaflets (10-35 x 5-16mm). Solitary, tubular scarlet flowers (15mm diameter) with five irregular petals with the bottom three having a very slender claw (7-8mm long) appear from November to April. A thin, fleshy, deep blue seed capsule (1cm wide) made up of three round parts follows flowering.

Effectively dispersed by birds, established plants are moderately long-lived and develop a scrambling habit. It tolerates warm to cold temperatures, salt, wind, many soil types, and damp to dry conditions.

Within disturbed forest and shrubland, its ability to climb to canopy height and depress light levels causes smothering of bush areas and the prevention of native species establishment.

For these reasons, it is included in the Proposal.

Darwin's barberry is an evergreen, spiny, yellow-wooded shrub (less than 4m tall) with woody and densely hairy stems that have tough, 5-pronged, needle-sharp spines. Hairless, glossy, dark green leaves (10-30mm x 5-15mm) are usually spiny-serrated along edges. Hanging clusters (7cm long) of deep orange-yellow flowers (5-7mm diameter) appear from July to February followed by oval purplish-black berries (5-7mm diameter) with a bluish-white surface.

This long-lived plant tolerates moderate to cold temperatures, damp to dry conditions, high wind, salt, shade, damage, grazing (not browsed), and a range of soils. Birds and possibly possums eat the berries and subsequently spread the seeds. Berries are also occasionally spread by soil and water movement.

It is capable of invading pasture, disturbed forest, shrubland, tussockland, along roadsides and other sparsely vegetated sites. The plant forms dense colonies that replace existing vegetation and prevent the establishment of desirable plants. Darwin's barberry will also establish under canopy in forest and shrubland. It can grow more rapidly than native species when suitable conditions arise, allowing it to dominate sites where it establishes.

For these reasons, it is included in the Proposal.

Gunnera is a large, clump-forming, summer-green herb (up to 2m) growing from stout horizontal rhizomes with large sized leaves (80 cm x 1 m) on sturdy stalks. Both leaves and leaf stalks are covered in rubbery red prickles. Gunnera dies down over winter in cold climates and grows new leaves in spring from large, lobed, scaly buds (25 cm long) that are pinkish-green when fresh and dry to brown. It produces small densely packed green flowers in summer on long, erect, conical spikes which develop into reddish, oblong fruit (1.5-2mm long), each containing a single oblong seed.

Source: Weedbusters

It is known in other regions in New Zealand to shade out other plants, form dense stands/clumps and to spread to bluffs, wet cliffs and near waterways. It is present on the Otago Peninsula.

For these reasons, it is included in the Proposal.

Sycamores are a deciduous tree (<20m tall) with smooth grey bark and hairless green shoots. Large buds (<5cm long) have pinkish inner scales. Bluish-green 5-lobed leaves (8-14 x 10-20cm) are in opposite pairs on reddish stems. Flowerheads (October-November) are narrow drooping clusters (5-15cm long) of many dense, green flowers (2-4mm long), followed by reddish, winged, 'helicopter' seed capsules (2-4cm long) containing two seeds (5-10mm long).

Source: Environment Southland

The plant is persistent and forms dense (often pure) stands. Produces many long-lived seeds that are well dispersed by wind and water. Seedlings are shade tolerant. It tolerates warm to very cold, moist to dry, most soils, wind and salt. Possibly able to release toxins into the soil to stop other plants growing near it.

It invades disturbed and intact forest and shrubland, short tussockland, fern-land, river systems and bare land. The dense stands prevent recruitment of other species.

For these reasons, it is included in the Proposal.

Tradescantia (wandering willie) is a trailing, soft, hairless, perennial groundcover with succulent, soft, creeping stems that root at all nodes touching the ground. Dark green, shiny, smooth and slightly fleshy leaves (3-6cm long) are oval with pointed tips. White flowers (2cm diameter) produced from December to January are 3-petalled and in small clusters. No fruit or seed is produced in New Zealand. It rapidly establishes from fragments.

The plant is very tolerant of dense shade, severe damage and grazing, wet, most soil types and high to low temperature, but intolerant of frost and drought. Stem fragments are spread by water movement, livestock, dumped vegetation, soil movement, boots and mowers.

The plant invades most damp shaded habitats, especially disturbed and previously grazed forest, shrubland, stream sides, river systems, alluvial

terraces, fern-land, wetlands, and anywhere downstream or adjacent to existing infestations. It smothers ground in light to deep shade, preventing the seedlings of native species from establishing. Causes habitats to open and be invaded by exotic shrubs and vines. Mats growing on riverbanks can break away with water flow and contribute to flooding.

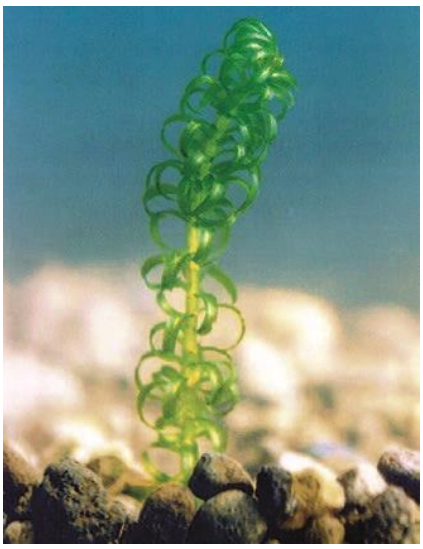
For these reasons, it is included in the Proposal.

Lagarosiphon is a submerged, bottom-rooted perennial, which can form monospecific growths up to 5m tall upon reaching the water surface. The leaves are dark green (16 x 2mm) and have minute serrations along the edges. They are arranged spirally around the stem and are curved backwards or downwards. Tiny pinkish flowers are produced, but, as only female plants are found in New Zealand, no seed is set. It propagates through stem fragments being carried on water currents, boats, fishing gear, aquarium and pond escapes and deliberate planting.

This plant is present in Lakes Dunstan and Roxburgh and parts of Lake Wanaka. It is also present in the Clutha River/Mata-Au and the Kawarau River. Isolated, individual plants are regularly removed from Frankton Arm in Lake Wakatipu, which is thought to be a result of weed transfer by boats from other waterways in the region.

This plant is a potential threat to the aquatic environment because its vigorous growth 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.

Source: NIWA



Animals

Bennett's wallaby – see pest description in section 6.2.2 of the Proposal, Eradication Programmes.

Feral cats resemble domestic cats in both size and colouration. Adult male cats are generally larger than the females and can weigh up to 5kg. They tend to be solitary and territorial compared to domestic stray or unwanted cats that tend to form colonies. Feral cats are mainly active at night.

Feral cats inhabit a wide range of urban, rural and forest habitats. Diet is wide-ranging and includes small mammals, fish, birds and invertebrates. They have 2-3 litters per year with an average of 4 young in each.

Feral cats have been branded as 'the ultimate predators' in New Zealand and have been nominated as among 100 of the "World's Worst" invaders. New Zealand's unique native wildlife is particularly vulnerable to predation by cats. Feral cats kill young and adult birds and occasionally take eggs, prey on native lizards, fish, frogs and large invertebrates.

Feral cats are implicated in a small way in the spread of Bovine Tuberculosis, with the potential to infect cattle. They also carry parasites and toxoplasmosis that causes abortions in sheep and illness in humans.

Feral and stray cats can be aggressive towards pet cats. Through fighting they cause severe injuries, sometimes resulting in the pet cat having to be put down. Stray cats are likely to interbreed with the un-neutered domestic cat population and may spread infectious diseases.

For these reasons, they are included in the Proposal.

Source: Environment Southland

Source: DOC

Feral deer are medium to large-sized ungulates ranging in weight from 40kg (female white tailed) to 450kg (wapiti male). Red deer have a reddish-brown coat, while wapiti are chestnut brown with a distinctive cream rump. The coats of samba are dark brown with a tan-rust red rump, while rusa are dark reddish-brown. Sika deer have a black dorsal stripe, white rump, chestnut brown sides with white spots. The coats of white tailed deer are light brown with white undersides and rump. Fallow deer have coats of varying brown colours.

Source: DOC

Feral deer live in a wide range of habitats, particularly forest. They consume large quantities of native seedlings and saplings which reduces vegetation biomass and leads to failure in recruitment of a range of woody and herbaceous species and alters habitat for native fauna.

Heavy and selective browsing on trees and shrubs can change forest structure and the composition of the understorey. Palatable plant species such as schefflera/pate, broadleaf, three-finger, lancewood, and hen and chicken fern can be all but removed from the ground tier. Sika deer often target species considered unpalatable to other deer.

They are included in the Proposal for the above reasons.

Feral goats are sheep-sized animals with short hair, pointed horns and a beard. Colour can be white, black, brown or a combination of these. Males average 39kg, are about 680mm tall and about 1.3m long. Females average 30kg, are about 620mm tall with a body length of 1.2m. Their hooves are leaved with pointed, slightly incurved tips and their eyes ae greenish blue.

Source: DOC

They are social animals, disperse slowly, and do not voluntarily cross large rivers. This results in patchy distribution. However, their high birth rates, when in good condition, enable population size to roughly double every two years. The major cause of mortality is hunting, although feral pigs may prey on young goats.

Goats are browsing generalists and feed on woody species in forests. Feral goats impact on indigenous ecosystems through their concentrated browsing and trampling. Even in low numbers, their impacts on forest and scrublands can be serious – they destabilise forest ecosystems, and defoliate and eat the stems of palatable under-storey species, bark saplings, and prevent regeneration of seedlings. Unpalatable shrubs increase, and on some islands, forest ecosystems have been converted to grassland.

Feral goats have few economic impacts, although they may occasionally compete with sheep for feed, and they have a wide range of parasites and diseases in common with sheep. Their range is limited however, and they are controlled relatively easily, so it is not considered that they have any significant economic impact.

They are included in the Proposal for their adverse effects on indigenous ecosystems.

Feral pigs can measure 90-200cm in length and weigh 50-90kg. Their colour varies from dark grey to brown or black. Adult males develop tusks that protrude from their mouth. Sexually mature at two years of age, they breed once per year with litter size ranging from 4-6 piglets. Vegetation forms 70% of a pig's diet. Pig rooting can reduce the diversity of seedlings and saplings and cause a dramatic reduction in leaf cover on the forest floor.

Feral pigs can have major effects on native flora and fauna. They eat the tops of native plants and dig up their roots, resulting in the decline of some species. Also eaten are many native invertebrates, native land snails and large quantities of native earthworms. Pig predation of flightless and ground-dwelling birds (e.g. kiwi) has been suggested but rarely confirmed.

They are included in the Proposal for their adverse effects on indigenous ecosystems.

Source: Environment Southland

Hedgehogs are nocturnal insectivores. Their back and sides are completely covered with spines and they roll into a prickly ball when disturbed, or when hibernating. They are widespread through lowland areas, occupying a wide range of habitats.

These animals eat mainly insects however they eat a wide range of food if the opportunity presents itself. They are a potentially serious predator of native invertebrates, lizards, and ground nesting birds.

They are included in the Proposal for their adverse effects on indigenous ecosystems.

Source: DOC

Mustelids (ferrets, stoats, weasels) are small to medium sized carnivores with large home ranges. Ferrets are the largest of the three. Male ferrets grow up to 44cm and females up to 37cm in length. The undercoat is creamy yellow with long black guard hairs that give the ferret a dark appearance. A characteristic black face mask occurs across the eyes and above the nose. Stoats have long, thin bodies with smooth pointed heads. Ears are short and rounded. Males grow up to 30cm and females up to 25cm in length. Their fur is reddish-brown above with a white to yellowish underbelly. Stoats have relatively long tails with a distinctive bushy black tip. Weasels are the smallest and least common mustelid. Males grow to about 20cm. Their fur is brown with white undercoat, often broken by brown spots. Their tails are short, brown and tapering.

Although habitat loss and modification remain the most serious threat to native biodiversity, introduced predators, such as ferrets, stoats, and weasels also pose a significant threat. Mustelids are implicated in the extinction of some indigenous bird species and as the major cause of decline of many others. Ferrets are also a threat to agriculture, particularly through their role as a vector (carrier) of Bovine Tuberculosis. Mustelids are a threat to poultry farms and carry parasites and

toxoplasmosis, which can cause illness in humans and livestock.

They are included in the Proposal for their adverse effects on indigenous ecosystems.

Source: DOC

Possums are marsupials and the males and females are similar in size; between 650 and 930mm, including a tail of 250 to 405mm. They weigh between 1.4 and 6.4kgs, have a furry body, a long prehensile, bushy tail, a pointed snout, pink nose, long dark whiskers and brown eyes. Possums begin breeding at one to two years of age and juveniles disperse an average of 6km from their home range. Primarily herbivores, they feed on a variety of leaves, flower buds, fruit, ferns, and fungi. They feed also on invertebrates and opportunistically on the eggs and nestlings of birds.

Source: DOC

Therefore, they cause extensive defoliation of favoured plant species and progressive change in forest composition to less favoured species occurs. Damage is not however uniform across habitats. Possums can also impact native animals by predation of insect species, snails, and birds.

Possums cause economic effects by damaging exotic forests, eating pasture, and through the spread of Bovine Tuberculosis. However, the possum browsing on pasture is likely to be a minor problem apart from pasture/bush margins. Possums can also damage winter feed and other crops especially on bush/pasture margins. The damage to exotic forests tends to be limited but they are known to damage tree crops and domestic gardens.

Possums are included in the Proposal to address adverse effects to conservation values and to protect the past economic investment Bovine Tuberculosis control. There is evidence to support the link between possums and Tuberculosis in farmed animals. Recent studies show that cattle and deer may lick and nuzzle Tuberculosis-infected possums in the terminal stages of the disease as the possums wander around open ground in daylight.

Rat (Norway, ship and Kiore)

Ship rat is a slender rat with large hairless ears, grey-brown on the back with a similarly coloured or creamish-white belly, or black all over. Adults usually weigh 120-160g but can exceed 200g.

Norway rat has brown fur on its back and pale grey fur on its belly. Adults normally weigh 150-300g, may reach up to 500g, and are up to 390mm long. Tail is shorter than head-body length. Breeding commences as early

as 3-4 months of age. Females can produce 15-20 young per year.

Kiore has brown fur, white-tipped grey fur on belly, pale feet with dark mark on outer edge of the hind feet. They are smaller than other rats in New Zealand, with a maximum body length of 180mm without tail, and they usually weigh 60g - 80g, maximum 180g.

They occupy a wide range of urban, rural and forest habitats. Ship rats are more common within forest areas.

Omnivorous and opportunistic feeders eating 10% of their body weight per day. This makes them a competitor for food with many species and predators of others. They eat a variety of native flora and fauna, in particular native birds (eggs and fledglings), lizards, and invertebrates. They eat large quantities of native seeds, which reduces regeneration of native plants.

They are included in the Proposal because of these adverse effects.

Source: Environment Southland

6.5.4 Site-led programmes on the Otago Peninsula

The management aims and the range of methods to be used to accomplish the aims for the pest to be managed under the site-led programme for the Otago Peninsula are set out in Table 26 below. An explanation of alternative means is also provided.

Table 26: Aims and means of achievement for site-led programmes on the Otago Peninsula

Objective, Principal Measures and Rules	
Plan Objective 6.5.4.a Over the duration of the Plan: a) preclude establishment of feral deer, feral goats, feral pigs and Bennett's wallaby; and b) eradicate possums; and c) sustainably control feral cats, hedgehogs and mustelids on the Otago Peninsula (identified on Map 3, Appendix 3) to avoid, mitigate or prevent damage to the indigenous ecosystem values at this site. **Plan Objective 6.5.4.b** Over the duration of the Plan, progressively contain: a) banana passionfruit; b) Chilean flame creeper; c) Darwin's barberry; d) Sycamore e) Gunnera; and f) tradescantia on the Otago Peninsula (identified on Map 3, Appendix 3) to avoid, mitigate or prevent damage to the indigenous ecosystem values at this site.	**Principal measures to be used** Otago Regional Council will take a lead role in supporting community groups and agencies in bringing about the desired levels of environmental protection to this site. Appropriate measures drawn from the suite of activities listed under **collaboration, requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Proposal will be used by Otago Regional Council to achieve Objectives 6.5.4 and 6.5.5. It is not proposed to introduce occupier control responsibilities at this stage. However, this may become necessary in the future to maintain public investment of actions or funding or where lack of cooperation could jeopardise achieving the Objectives. How the Otago Regional Council intends to deliver these objectives with the community is described more fully in the proposed Biosecurity Strategy. **Alternatives considered** Relying solely on voluntary action without Otago Regional Council support to achieve Plan Objectives 6.5.4.a and 6.5.4.b is not considered viable due to the nature of the pests, the scale of the programme, the effectiveness of voluntary action and the need for a collaborative inter-agency approach, especially given that the beneficiaries of control action lies with the wider community. It is likely that Otago Regional Council does not have the financial resource to fully fund the programmes. Furthermore, the consequences of occupiers no longer owning the problem could lead to over-optimistic expectations on the part of both occupiers and the wider community. This alternative is therefore rejected. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.

Plan Rule 6.5.4.1	Explanation of rule
No person shall keep, hold, enclose or otherwise harbour in any place, either in transit to or present on the Otago Peninsula (identified on Map 3 in Appendix 3) any: a) Bennett's wallaby; b) feral deer; c) feral goat; d) feral pig; e) mustelid; f) hedgehog; or g) possum. A breach of this rule creates an offence under section 154N(19) of the Act. For the purpose of this rule place includes any building, conveyance, craft, land, or structure.	The reason for this rule is to help achieve the exclusion or eradication of these pests from the Otago Peninsula.

Advice Note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993.

6.5.5 Site-led programmes at West Harbour – Mt. Cargill area

The management aims and the range of methods to be used to accomplish the aims for the pest to be managed under the site-led programme at West Harbour – Mt. Cargill are set out in Table 27 below. An explanation of alternative means is also provided.

Table 27: Aims and means of achievement for site-led programmes at West Harbour – Mt. Cargill

Objective, Principal Measures and Rules	
Plan Objective 6.5.5.a Over the duration of the Plan: a) preclude establishment of feral deer and Bennett's wallaby; and b) sustainably control feral cats, feral goats, feral pigs, hedgehogs and mustelids; and c) progressively contain possums to achieve a 2% RTC at West Harbour – Mt. Cargill (identified on Map 3 in Appendix 3) to avoid, mitigate or prevent damage to the indigenous ecosystem values at this site. **Plan Objective 6.5.5.b** Over the duration of the Plan, progressively contain: a) banana passionfruit; b) Chilean flame creeper; c) sycamore; d) Darwin's barberry; and e) tradescantia at West Harbour – Mt. Cargill (identified on Map 3 in Appendix 3) to avoid, mitigate or prevent damage to the indigenous ecosystem values at this site.	**Principal measures to be used** Otago Regional Council will take a lead role in supporting community groups and agencies in bringing about the desired levels of environmental protection to this site. Appropriate measures drawn from the suite of activities listed under **collaboration, requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Proposal will be used by Otago Regional Council to achieve Objectives 6.5.5.a and 6.5.5.b. It is not proposed to introduce occupier control responsibilities at this stage. However, it may become necessary in the future to maintain public investment of actions or funding or where lack of cooperation could jeopardise achieving the Objectives. How the Otago Regional Council intends to deliver these objectives with the community is described more fully in the proposed Biosecurity Strategy. **Alternatives considered** Relying solely on voluntary action without Otago Regional Council support to achieve Plan Objectives 6.5.5.a and 6.5.5.b is not considered viable due to the nature of the pests, the scale of the programme, the effectiveness of voluntary action and the need for a collaborative inter-agency approach, especially given that the beneficiaries of control action lies with the wider community. It is likely that Otago Regional Council does not have the financial resource to fully fund the programmes. Furthermore, the consequences of occupiers no longer owning the problem could lead to over-optimistic expectations on the part of both occupiers and the wider community. This alternative is therefore rejected. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.

Plan Rule 6.5.5.1	Explanation of rule
No person shall keep, hold, enclose or otherwise harbour in any place, either in transit to or present at West Harbour – Mt. Cargill (identified on Map 3 in Appendix 3) any a) Bennett's wallaby; b) feral deer; c) feral goat; d) feral pig; e) mustelid; f) hedgehog; or g) possum. A breach of this rule creates an offence under section 154N(19) of the Act. For the purpose of this rule place includes any building, conveyance, craft, land, or structure.	The reason for this rule is to help achieve the exclusion, eradication or control of these pests from West Harbour – Mt. Cargill.

Advice Note

Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993.

6.5.6 Site-led programmes on Quarantine and Goat Islands

The management aims and the range of methods to be used to accomplish the aims for the pest to be managed under site-led programmes at Quarantine and Goat Islands are set out in Table 28 below. An explanation of alternative means is also provided.

Table 28: Aims and means of achievement for site-led programmes on Quarantine and Goat Islands

Objective, Principal Measures and Rules	
Plan Objective 6.5.6 Over the duration of the Plan: a) preclude establishment of Bennett's wallaby, feral cats, feral deer, feral goats, feral pigs, mustelids, hedgehogs[5] and possums; and b) eradicate rats on Quarantine and Goat Islands (identified on Map 3 in Appendix 3) to avoid, mitigate or prevent damage to the indigenous ecosystem values at this site.	**Principal measures to be used** Otago Regional Council will take a lead role in supporting community groups and agencies in bringing about the desired levels of environmental protection to this site. Appropriate measures drawn from the suite of activities listed under **collaboration, requirement to act, council inspection, service delivery, advocacy and education** described in section 5.3 of the Proposal will be used by Otago Regional Council to achieve Objective 6.5.6. It is not proposed to introduce occupier control responsibilities at this stage. However, it may become necessary in the future to maintain public investment of actions or funding or where lack of cooperation could jeopardise achieving the objectives. How the Otago Regional Council intends to deliver these objectives with the community is described more fully in the proposed Biosecurity Strategy. **Alternatives considered** Relying solely on voluntary action without Otago Regional Council support to achieve Plan Objective 6.5.6 is not considered viable due to the nature of the pests, the scale of the programme, the effectiveness of voluntary action and the need for a collaborative inter-agency approach, especially given that the beneficiaries of control action lies with the wider community. It is likely that Otago Regional Council does not have the financial resource to fully fund the programmes. Furthermore, the consequences of occupiers no longer owning the problem could lead to over-optimistic expectations on the part of both occupiers and the wider community. This alternative is therefore rejected.

[5] Existing information suggests that hegehogs are not present on Goat Island, however if further research demonstrates that they are, then the objective for hedgehogs on Goat Island will be eradication.

	There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.
Plan Rule 6.5.6.1 No person shall keep, hold, enclose or otherwise harbour in any place, either in transit to or present on Quarantine and Goat Islands (identified on Map 3 in Appendix 3) any: a) Bennett's wallaby; b) feral cat; c) feral deer; d) feral goat; e) feral pig; f) mustelid; g) hedgehog; h) possum; or i) rat. A breach of this rule creates an offence under section 154N(19) of the Act. For the purpose of this rule place includes any building, conveyance, craft, land, or structure.	**Explanation of rule** The reason for this rule is to help achieve the exclusion or eradication of these pests from Quarantine and Goat Islands.
Advice Note Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993.	

6.5.7 Site-led programme for lagarosiphon management areas

The management aims and the range of methods to be used to accomplish the aims for lagarosiphon to be managed under site-led programmes within the lagarosiphon management areas are set out in Table 29 below. An explanation of alternative means is also provided.

Table 29: Aims and means of achievement for site-led programmes for lagarosiphon management areas

Objective, Principal Measures and Rules	
Plan Objective 6.5.7 Over the duration of the Plan actively manage lagarosiphon to: a) progressively contain lagarosiphon in Lake Wanaka and the Kawarau River (Map 4 in Appendix 3) to reduce its extent over the next 10 years; b) sustainably control lagarosiphon in Lake Dunstan (Map 4 in Appendix 3); c) preclude the establishment of lagarosiphon in Lake Wakatipu (Map 4 in Appendix 3); d) preclude the establishment of lagarosiphon in lakes and rivers excluding Lake Roxburgh and the Clutha River/Mata-au and its tributaries where it is not already present to avoid, mitigate or prevent effects on the environment, and amenity and recreational values.	**Principal measures to be used** Land Information New Zealand will take a lead role in controlling and eradicating lagarosiphon in Otago's lakes and rivers that it administers. Otago Regional Council will work collaboratively with Land Information New Zealand and other partners in the preparation, administration and delivery of 10-year Management Plans for the control of lagarosiphon and in other initiatives to deliver the outcomes in the objectives. Land occupiers will be responsible for eradicating lagarosiphon within private ponds and aquariums. The **requirement to act, service delivery, advocacy, education, and collaboration** described in section 5.3 of the Plan, will be used primarily to achieve Plan Objective 6.5.7. How the Otago Regional Council intends to support the delivery of these objectives with Land Information New Zealand is described more fully in Section 3 of the Proposed Biosecurity Strategy. **Alternatives considered** Otago Regional Council could take on the total responsibility for controlling lagarosiphon. However, Land Information New Zealand is the land occupier of most lakes and rivers in Otago that are affected by lagarosiphon. Relying on voluntary individual action to minimise adverse impacts of lagarosiphon would not be effective due to limited available incentives to do so and the associated risk of spread. These two alternatives are therefore rejected. There are no alternative measures that provide for satisfactory inspection, education or advocacy measures.
Plan Rule 6.5.7.1 Any person leaving the waters of Lakes Dunstan, Wanaka or Roxburgh or from the Clutha River/Mata-Au and the Kawarau River must immediately remove and safely dispose of all fragments of lagarosiphon from boats,	**Explanation of rule** The reason for this rule is to protect waterbodies not currently infested with lagarosiphon from becoming infested and threatening environmental and recreational values.

equipment and all other items in their possession. A breach of this rule creates an offence under section 154N(19) of the Act.	
Plan Rule 6.5.7.2 Occupiers must destroy and safely dispose of all lagarosiphon in any pond or aquarium on their land. A breach of this rule creates an offence under section 154N(19) of the Act.	**Explanation of rule** The reason for this rule is to protect waterbodies not currently infested with lagarosiphon from becoming infested and threatening environmental and recreational values.
Advice Note Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Biosecurity Act 1993.	

6.5.8 Adding new site-led programmes to the Plan

The process that will be followed for adding a new site-led programme to the Plan is dependent on whether the programme will have effect on a person's rights or obligations.

If such effects are not significant, the Plan may be amended by Council resolution to include the site in accordance with section 100G of the Act. For example, where minimal regulation is required and there is substantial support among the parties for its inclusion. Guidelines setting out how site-led programmes may be included in the Plan by Council resolution are provided in Appendix 2 of the Proposed Biosecurity Strategy.

In cases where such effects are considered to be significant, the addition will be by a more comprehensive process including appropriate consultation, notification and appeal provisions as required under the Act.

7. MONITORING

7.1 MEASURING WHAT THE OBJECTIVES ARE ACHIEVING

Anticipated result	Indicator	Method of monitoring	Frequency of monitoring	Reporting to Council
Exclusion Programmes				
Absence of African feather grass, Chilean needle grass, false tamarisk and moth plant from the region	Absence in the Otago region	Reporting by occupiers or other persons	As reported	Annual
		Surveillance programmes	Annual surveillance programme	Annual
Eradication Programmes				
All spiny broom removed	Absence of spiny broom in the Otago region	Population assessment based on inspections	Annual inspection programme	Annual
		Reporting by occupiers or other persons	As reported	Annual
All rooks destroyed	Absence of rooks in the Otago region	Population assessment based on rookery inspections	Annual inspection programme	Annual
		Reporting by occupiers or other persons	As reported	Annual
All Bennett's wallaby destroyed	Absence of Bennett's wallaby in the Otago region	Population assessment based on inspections	Annual / as appropriate inspection programme	Annual and as appropriate
		Reporting by occupiers or other persons	As reported	Annual and as appropriate
Progressive Containment Programmes				
The spatial reduction of African love grass, bomarea, boneseed, bur daisy, cape ivy, nassella tussock, old man's beard, perennial nettle, spartina, and	Annual decrease in plant population on high risk land	Population assessment as a result of inspection activities	Annual inspection programme	Annual

white-edged nightshade over the life of the Plan.				
The spatial reduction of wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch over the life of the Plan.	Control and maintenance is undertaken as part of the National Wilding Conifer Control Programme	Population assessment as a result of inspections in accordance with the National Wilding Conifer Control Programme	Annual inspection programme	Annual
Sustained Control Programmes				
Gorse and broom does not spread between properties and to gorse and broom free areas	Absence adjacent to boundary fences	Boundary monitoring for presence / absence in response to complaint	Pre and post control operations	Annual
	Gorse and broom is excluded from gorse and broom free areas	Aerial monitoring	Every 2 years (may be more frequent for transitional gorse and broom free areas)	Every 2 years (may be more frequent for transitional gorse and broom free areas)
Nodding thistle and ragwort does not spread between properties where this affects production values on adjacent properties	No spread to adjoining properties	Boundary monitoring for presence / absence in response to complaint	Pre and post control operations	Annual
Russell lupin and wild Russell lupin	No presence within specified distances to waterways	Boundary monitoring for presence / absence in high risk areas	Pre and post control operations	Annual
Site Led Programmes				
Support the management and control of lagarosiphon in lagarosiphon management areas	Lagarosiphon extent within lagarosiphon management areas does not spread and absence of lagarosiphon in Lake Wakatipu	presence / absence	As reported by lagarosiphon management groups, and Otago Regional Council where required – annual minimum	Annual
Support the management and control of pests	The reduction of pests within the Otago Peninsula,	Predator Free Dunedin and Otago Regional	As reported by Predator Free Dunedin and	Annual

occupying the Otago Peninsula, West Harbour – Mt. Cargill and Quarantine and Goat Islands site-led areas	West Harbour – Mt. Cargill and Quarantine and Goat Islands site-led areas	Council monitoring of boundaries and densities	Otago Regional Council where required – annual minimum

7.2 MONITORING THE MANAGEMENT AGENCY'S PERFORMANCE

Otago Regional Council is the management agency. As the management agency responsible for implementing the Plan, the Otago Regional Council will:

a. prepare an operational plan within three months of the Plan being approved;

b. review the operational plan, and amend it if needed;

c. report on the operational plan each year, within five months after the end of each financial year;

d. maintain up-to-date databases of complaints, pest levels and densities, and responses from regional council and land owners and/or occupiers.

7.3 MONITORING PLAN EFFECTIVENESS

Monitoring the effects of the Plan will ensure that it continues to achieve its purpose. It will also check that relevant circumstances have not changed to such an extent that the Plan requires review. A review may be needed if:

a. the Act is changed, and a review is needed to ensure that the Plan is not inconsistent with the Act;

b. other harmful organisms create, or have the potential to create, problems that can be resolved by including those organisms in the Plan;

c. monitoring shows the problems from pests or other organisms to be controlled (as covered by the Plan) have changed significantly; or

d. circumstances change so significantly that Otago Regional Council believes a review is appropriate.

If the Plan does not need to be reviewed under such circumstances, it will be reviewed in line with section 100D of the Act. Such a review may extend, amend or revoke the Plan, or leave it unchanged.

The procedures to review the Plan will include officers of the Otago Regional Council:

a. assessing the efficiency and effectiveness of the principal measures (specified for each pest and other organism (or pest group or organisms)) to be controlled to achieve the objectives of the Plan;

b. assessing the impact the pest or organism (covered by the Plan) has on the region and any other harmful organisms that should be considered for inclusion in the Plan; and

c. liaising with statutory authorities and key interest groups on the effectiveness of the Plan.

PART THREE: PROCEDURES

8. POWERS CONFERRED

8.1 POWERS UNDER PART 6 OF THE ACT

The Principal Officer (Chief Executive) of Otago Regional Council may appoint authorised persons to exercise the functions, powers and duties under the Act in relation to the Plan.

Otago Regional Council will use those statutory powers of Part 6 of the Act as shown in Table 30, where necessary, to help implement the Plan.

Table 30: Powers to be used from Part 6 of the Act

Administrative provisions	Biosecurity Act Reference
The appointment of authorised and accredited persons	Section 103(3) & (7)
Authorised person to comply with instructions	Section 104(2)
Delegation to authorised persons	Section 105
Power to require assistance	Section 106
Power of inspections and duties	Section 109, 110 112
Duties on exercising powers under section 110 and section 111	Section 112
Power to record information	Section 113
General powers	Section 114 & 114A
Use of dogs and devices	Section 115
Seizure of evidence (under section 111)	Section 118
Power to intercept risk goods	Section 120
Power to examine organisms and apply substances	Section 121 & 121A
Power to give directions	Section 122
Power to vaccinate	Section 123
Power to act on default	Section 128
Liens	Section 129
Declaration of restricted areas	Section 130
Declaration of controlled areas	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

Note: Otago Regional Council's procedures sets out the procedures it will follow when land owners and/or occupiers or other persons do not comply with the rules or other duties.

8.2 POWERS UNDER OTHER SECTIONS OF THE ACT

Any person in breach of a rule in the Plan that specifies that a contravention of the rule creates an offence under section 154N(19) of the Act, can be prosecuted and is liable on conviction under section 157(5) of the Act to a fine.

The Principal Officer (Chief Executive) of Otago Regional Council or Chief Technical Officer (employed under the State Sector Act 1988) may appoint authorised people to implement other biosecurity law considered necessary. One example is where restrictions on selling, propagating and distributing pests (under sections 52 and 53 of the Act) must be enforced. Another example is where owners and/or occupiers of land are asked for information (under section 43 of the Act).

8.3 POWER TO ISSUE EXEMPTIONS TO PLAN RULES

Any person may upon representation to Otago Regional Council be exempt from a requirement in a rule set out in Part Two of the Proposal.

The requirements in section 78 of the Act must be met for a person to be granted an exemption. These include:

2. *The council may grant an exemption under subsection (1) only if—*
    a. *the council is satisfied that granting the exemption will not significantly prejudice the attainment of the plan's objectives; and*
    b. *the council is satisfied that 1 or more of the following applies:*
        i. *the requirement has been substantially complied with and further compliance is unnecessary:*
        ii. *the action taken on, or provision made for, the matter to which the requirement relates is as effective as, or more effective than, compliance with the requirement:*
        iii. *the requirement is clearly unreasonable or inappropriate in the particular case:*
        iv. *events have occurred that make the requirement unnecessary or inappropriate in the particular case.*
3. *The council may exempt all persons, a specified class of persons, persons in a specified place, or persons responsible for specified goods or things from a requirement in a rule, without conditions or on conditions that the council considers appropriate.*
4. *The council may grant an exemption under subsection (3) only if the council is satisfied that events have occurred that make the requirement unnecessary or inappropriate.*

5. *Conditions on which the council grants an exemption must be consistent with the purpose of this Part and must be no more onerous than the requirement from which the exemption is granted.*

6. *The council must determine the period of an exemption that the council grants.*

Otago Regional Council will keep and maintain a register of exemptions granted that records the description, reasons and period of each exemption. The public will be able to inspect this register free of charge during business hours. Otago Regional Council may also grant an extension of the period of an exemption.

9. FUNDING

9.1 INTRODUCTION

The Act requires that funding is thoroughly examined. For a Proposal, this includes:

- analysing the costs and benefits of the Plan and any reasonable alternative measures;
- noting how much any person will likely benefit from the Plan;
- noting how any person's actions or inactions may contribute to creating, continuing or making worse the problems that the Plan proposes to resolve;
- noting the reason for allocating costs; and
- noting whether any unusual administrative problems or costs are expected in recovering the costs from any person who is required to pay.

The proposal is also required to specify:

a. the effects that, in the opinion of the person making the proposal, implementation of the plan would have on—

i. economic wellbeing, the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga;

ii. the marketing overseas of New Zealand products; and

b. if the plan would affect another pest management plan or a pathway management plan, how it is proposed to coordinate the implementation of the plans.

9.2 ANALYSIS OF BENEFITS AND COSTS

The Act and its accompanying NPD demand a rigorous analysis of benefits and costs. In order to satisfy the requirements, Otago Regional Council commissioned a report, *Meeting the requirements of the Biosecurity Act 1993 and National Policy Direction for Pest Management 2015: Analysis of costs and benefits* (the CBA Report).

In general, the quantified net benefits consist of the costs of implementing the Plan and the production benefits arising from this action. These are calculated as net present values using a six percent discount rate and a timeframe of 100 years (NPV (6%)). In some situations, it is not always possible or cost effective to accurately monetise benefits and costs. Examples of these non-quantified benefits include mana whenua, biodiversity, recreation, and amenity values. For wallaby and wilding pine control, previous research provided some quantitative estimates of biodiversity benefits which were incorporated.

In some instances, there are also non-quantified costs such as loss of carbon sequestration and potential soil erosion.

The key outcomes derived from the quantitative analysis of benefits and costs are shown in Table 31 below. Benefits exceed costs in most cases when the planned intervention is compared with doing nothing. Where the quantified figures give a negative net benefit, the 'dollar value per hectare' necessary for a net positive outcome to occur has been put

forward (see column E of Table 31). In Otago Regional Council's opinion, those per hectare values are likely to be met, if not exceeded, when the non-quantified benefits are considered. These instances are discussed further below.

9.2.1 Summary of cost benefit analysis

Table 31 provides an overview of the 'intensity level of analysis' undertaken (see Appendix B of the CBA Report), the alternative objectives considered, the plan objective proposed for each pest or groups of pests, the net benefit outcomes compared against a 'Do Nothing scenario'), and the required non-quantified value (where applicable). The intensity level (Column B: 1 = low, 2 = medium and 3 = high in the) of the analysis is determined by:

a. *the level of uncertainty of the impacts of the subject, or an organism being spread by the subject, or of the effectiveness of measures; and*

b. *the likely significance of the subject, or an organism being spread by the subject, or of the proposed measures, in terms of stakeholder interest and contention, and the total costs of the proposed plan; and*

c. *the likely costs of the programme relative to the likely benefits; and*

d. *the level of certainty and the quality of the available data.*

The benefits and costs are shown and analysed in the table below.

Table 31: Types and analysis of costs and benefits

Analytical outcomes					
Pest	**A** **Intensity Level of Analysis**	**B** **Objectives considered**	**C** **Proposed Objectives and reasons**	**D** **Risk Adjusted Net Benefit of Proposed Objective (NPV6% $m)**	**E** **Biodiversity or other benefits needed for plan to be positive ($/ha NPV)**
Bennetts wallabies	2	Do nothing Eradication Sustained control (3 levels)	Eradication Provides the highest net return.	$26 - $97	
Rabbits (feral)	2	Do nothing Sustained control (2 levels)	Sustained Control.	$158	
Rooks	1	Do nothing Eradication	Eradication The net return is positive.	$0.36 - $0.68	
African love grass	1	Do nothing Eradication Progressive containment Sustained control	Progressive Containment Provides the highest net return.	$18.4	
Bomarea	1	Do nothing Eradication Progressive containment Sustained control	Progressive Containment Provides the highest net return.	$27.9	
Boneseed	1	Do nothing	Progressive Containment	-$0.43	$370/ha

		Eradication Progressive containment Sustained control	Net return is positive if biodiversity protection is taken into account.		
Broom	2	Do nothing Eradication Progressive containment Sustained control	Sustained Control Provides the highest net return.	$59.3	
Bur daisy	1	Do nothing Eradication Progressive containment Sustained control	Progressive Containment Provides the highest net return.	$1.7	
Cape ivy	1	Do nothing Eradication Progressive containment Sustained control	Progressive Containment Provides the highest net return.	$4.9	
Gorse	2	Do nothing Eradication Progressive containment Sustained control	Sustained Control Provides the highest net return.	$59.3	
Lagarosiphon	. 1	Do nothing Eradication Progressive containment Sustained control	Site led While sustained control provides the highest net return, provided biodiversity values are taken into account, occupier agreement at each site means that the returns are assumed to be positive for the management proposed.	-$42.98 - -$423.47	$19000-82000/ha

Nassella tussock	2	Do nothing Eradication Progressive containment Sustained control	<u>Progressive Containment</u> While sustained control provides a higher net return, progressive containment can match it with very high levels of achievement.	$112	
Nodding thistle	2	Do nothing Eradication Progressive containment Sustained control	<u>Sustained Control</u> Provides the highest net return.	$1.6	
Old man's beard	1	Do nothing Eradication Progressive containment Sustained control	<u>Progressive Containment</u> Provides the highest net return.	$10.2	
Perennial nettle	1	Do nothing Eradication Progressive containment Sustained control	<u>Progressive Containment</u> Provides the highest net return.	$8.3	
Ragwort	2	Do nothing Eradication Progressive containment Sustained control	<u>Sustained Control</u> Provides the highest net return provided the assumptions are correct.	$76.5	
Spartina	1	Do nothing Eradication Progressive containment Sustained control	<u>Progressive Containment</u> Provides the highest net return if the assigned biodiversity value is held to be true.	-$5.6	$8630

Spiny broom	1	Do nothing Eradication Progressive containment Sustained control	Eradication Provides the highest net return.	$12.8	
White-edged nightshade	1	Do nothing Eradication Progressive containment Sustained control	Progressive Containment Provides the highest net return provided the assumptions are correct.	$0.05	
Wild Russell lupin	1	Do nothing Sustained control	Sustained Control Provides positive net return if biodiversity values are held to be true.	Undefined	Must exceed $160000 for the region plus control costs
Wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch	3	Do nothing Eradication Progressive containment Sustained control	Progressive containment (with a site-led approach). Preferred over sustained control due to long term benefits, non-monetised benefits and widespread community support, including landholder agreement in targeted sites.	$226	
Site-led pests (excluding lagarosiphon)	1	Do nothing Site-Led	Site Led Likely to be positive assuming landholder agreement.	Likely to be positive	
Exclusion pests	1	Do nothing Exclusion	Exclusion Likely to be positive.	Likely to be positive	

Adapted from Table 1 Summary of cost benefit outcomes and funding recommendations - *Meeting the requirements of the Biosecurity Act 1993 and National Policy Direction for Pest Management 2015: Analysis of costs and benefits (2018).*

9.2.2 Pests with a negative risk adjusted quantified net benefit

Boneseed, lagarosiphon, wild Russell lupin and spartina are in the Proposal because they pose significant threats to non-production values and pose little threat to production. Controlling these species will have biodiversity, recreation and amenity related benefits. The threshold value of $370 per hectare for boneseed, $19,000-$82,000 per hectare for lagarosiphon and $8,630 per hectare for spartina of land affected would need to be attributed to those other benefits in order for the plan to produce a positive outcome. Benefits from controlling wild Russell lupin are difficult to quantify because costs and benefits remain largely unknown. However, the costs associated with the proposed programme ($160,000 NPV at 6%) is considered worthwhile given the likely biodiversity benefits arising from control. The Otago Regional Council considers this threshold to be a fair investment in protecting the non-production values attributable to the control of boneseed, lagarosiphon, wild Russell lupin and spartina.

9.2.3 Site-led programmes

Four site-led programmes support and build on the significant momentum and collaboration being achieved by a number of occupiers and wider community interest groups. The three site-led programmes in Dunedin are interrelated projects to reduce the impact of harmful organisms on indigenous biodiversity. Not-for-profit groups have worked on the Peninsula for more than 10 years to protect the indigenous flora and fauna that call the Peninsula home. In collaboration with local and central Government agencies, many residents are now part of coordinated efforts to manage predator pests and plant pests.

The Otago Peninsula site-led programme will support existing efforts to protect the important biodiversity values on the Peninsula. The West Harbour- Mt. Cargill site-led programme supports and builds on the significant momentum of the Orokonui Halo Project, a collaboration between the Landscape Connections Trust, OSPRI and Otago Natural History Trust. Quarantine Island / Kamau Taurua and Goat Island / Rakiki are located in the Otago Harbour. These islands provide stepping stones for bird species, but also for rat species and mustelids to move from one side of the harbour to the other by either swimming or on-board small boats/kayaks.

The site-led programme for lagarosiphon builds on the collaborative lagarosiphon management projects led by LINZ and supported by other key parties. They focus on control works in Lake Dunstan to keep important recreation areas clear, its extent is reduced in Lake Wanaka and the Kawarau River over time, and it is kept out of Lake Wakatipu. ORC will continue to support these programmes and advocate to LINZ for long-term suppression of lagarosiphon in Otago and, over time, eradication in key areas.

Expenditure at any single site will be limited and the programme will only be undertaken where feasible and in conjunction with the land occupier. With such agreement from the land occupier it signals that for them the benefits of the programme are likely to exceed the costs they will incur. Likewise, the ORC considers that the benefits to the ORC and the wider community of the site-led programme exceed the costs and the requirements of Section 6 of the NPD will have been met.

9.2.4 Good neighbour rules

In addition to considering the benefits and costs of controlling a pest under a pest management programme, Section 8 of the NPD must also be considered where a good neighbour rule (GNR) is proposed for a pest. This Section requires that the:

- Pest would spread onto adjacent land;
- That the pest would cause unreasonable costs for the adjacent occupier;
- The adjacent occupier is controlling the pest;
- The requirement on the occupier from whence the pest (source) is spreading is not more than is required to prevent the pest spreading; and
- The costs of compliance for the source occupier are reasonable, relative to the cost that the adjacent occupier holder would incur from the pest spreading.

The reasonability test holds for GNR's in most situations. However, exemptions may need to be considered in some situations. Namely:

- For rabbits where the adjacent land exhibits low proneness to rabbit infestation;
- For broom, gorse and wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and larch where the infestation on the source land is heavy; and
- For ragwort where the land use on the adjacent land does not involve cattle.

What constitutes 'reasonable measures'?

The NPD requires a GNR to consider whether the owner or occupier of nearby or adjacent land is taking 'reasonable measures' to manage a pest or its impacts.

If the occupier of nearby or adjacent land is not taking 'reasonable measures' to protect from the pests or its impacts, this is taken as an indication the pest is unlikely to be affecting their use of the land, and the threat of pests from a nearby or adjacent property is unlikely to be causing them 'unreasonable costs'.

What measures are 'reasonable' will differ depending on the nature and threat of the pest, and the uses and values of the land.

The NPD outlines some general principles for defining what 'reasonable measures' are. In some cases, the 'reasonable measures' may be the measures sufficient to comply with obligations in another rule in the regional pest management plan.

In other cases, the measures considered reasonable will depend on whether land is currently present on the property.

If the pest is not currently present on the neighbour's land, the measures might include regular monitoring adequate for detecting the pest, and the intent and ability to control the pest if detected.

If the pest is present, the occupier should be managing it or its impacts. What is reasonable will depend on the uses and values of the land.

9.3 CONSIDERATION OF EFFECTS

Otago Regional Council considers that implementing the Plan will deliver positive outcomes for the community. The effects of implementing the Plan (in relation to each pest) for the relationship between the culture, traditions, ancestral lands, waters, sites, wāhi tapu and taonga of Kāi Tahu, environment, human health, the enjoyment of the natural environment, economic well-being and the marketing overseas of New Zealand products are described in this section of the Proposal.

9.3.1 Effects on Māori

The Plan is expected to have overall beneficial effects for Māori culture and traditions. Specifically, this Plan will prevent or reduce plant pest infestations, invasion and consequential degradation of wāhi tapu and taonga sites. Destruction of indigenous flora by animal pests will be prevented or reduced.

In the development of this proposal Kāi Tahu have identified some specific matters for the Plan to address and additional input from Kāi Tahu may be provided by submissions to the Plan.

9.3.2 Effects on the environment

The successful implementation of this Proposal will result in enhanced conservation, production, recreation and aesthetic values in the region by avoiding or minimising the adverse effects that animal and plant pests may have on the environment.

The beneficial effects include mitigating the adverse effects that high levels of rabbits have on native grassland ecosystems and on the soil resource. Preventing the establishment of wallabies is also beneficial given the adverse effects they have on native forests. Likewise, eradicating rooks is beneficial to the production environment.

Detrimental effects are principally associated with the use of herbicides and pesticides where these adversely affect non-target species. With respect to animal pesticides such as 1080 poison, pindone and cyanide, the effect on non-target species such as birds and invertebrates is strongly linked to the choice of bait (for example oats, carrot, pellets, jam), bait quality in the case of carrots, and the timing and location of operations. However, the introduction of rabbit haemorrhagic disease RHD in 1997 has resulted in minimising the use of 1080 and other pesticides for rabbit control.

In some cases, impacts on non-target species will be unavoidable but ORC will use best practice to minimise these effects, for example, by using sound operational procedures, skilled pest operators and requiring adherence to technical standards. On balance, ORC considers the detrimental effects on non-target species from control tactics to be less significant than the benefits to the environment from controlling pests in this Proposal.

Of the technical methods proposed to control animal and plant pests and other organisms to be controlled, the safe and efficient use of toxins and chemicals is of particular interest to the public. Addressing the concerns will occur through implementing the provisions of:

(a) the Health and Safety at Work Act 2015;

(b) the Resource Management Act 1991;

(c) operational plans;

(d) procedures, manuals and guidelines; and

(e) the Agricultural Compounds and Veterinary Medicines Act 1997.

Mitigating the adverse effects from plant pests can also benefit native ecosystems as well as production and pastoral environments. In some cases, imprudent removal of gorse and broom could prevent the vegetation succession process from occurring or increase erosion risk on steep land.

The specific effects being avoided or mitigated, on a pest-by-pest basis, are identified in Section 6.

9.3.3 Effects on human health

Some control methods, such as the use of chemicals and toxins, have the potential to adversely affect human health. The methods described above for minimising the risk to the environment also apply to minimising potential effects on human health. Concerns to human health are also addressed by the Hazardous Substances and New Organisms Act 1996. No other significant adverse effects on human health are anticipated.

9.3.4 Effects on enjoyment of the environment

Enjoyment of the environment may be impacted directly and indirectly by the Proposal. The Proposal benefits biodiversity which is appreciated and enjoyed by many people. Some pests, such as wilding conifers, can have very significant visual impacts affecting people's appreciation of the environment.

Control may also affect enjoyment of the environment by negatively impacting on recreational opportunities. Examples include reduced hunting opportunities for rabbits or inhibiting the use of some plants in gardens or areas where they may provide visual or aesthetic amenity.

9.3.5 Effects on economic well-being

The proposal will have a significant impact on economic well-being. The adverse effects on production are described elsewhere in this Proposal and in many instances are the primary reason for intervention. For each pest, the overall benefits (including both production and biodiversity) have been assessed as greater than the costs of control. The CBA Report has assessed that the combined management of all pests in the Proposal would amount to an overall net benefit of $868.8 Million[6] over the next one hundred years. Full details of the production benefits and costs of control are provided in the CBA Report.

9.3.6 Effects on the marketing overseas of New Zealand products

The control of animal and plant pests will increase agricultural production in some cases. Consequently, this Proposal is expected to have some beneficial effects for the marketing overseas of New Zealand products. The control of plant pests could also further enhance New Zealand's reputation as a "clean green" nation.

In the future, however, there could be increasing concerns from international markets and consumers regarding the use of chemical and biological control. These concerns would largely involve residues and product purity.

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[6] Based on net present value with a discount rate of 6 percent.

9.4 BENEFICIARIES AND EXACERBATORS

The extent to which any person benefits or is likely to benefit from a pest management plan depends on the organism to be controlled and the area for which expenditure is being incurred. Beneficiaries include occupiers and the community as a whole. Occupiers may benefit from increased productivity as a result of the effects of the Plan on their own property and from reduced risk of spill-over effects from other properties. The community as a whole may obtain non-producer benefits from the implementation of the Plan.

Non-producer benefits include a reduction in the actual and potential effects of pests on one or more of the following:

(a) the viability of rare or endangered species or organisms;

(b) the survival and distribution of indigenous plants or animals;

(c) the sustainability of natural and developed ecosystems, ecological processes and biological diversity;

(d) soil resources or water quality;

(e) human health or enjoyment of the recreational value of the natural environment;

(f) the relationship of Māori and their culture and traditions with their ancestral lands, waters, sites, wāhi tapu, and taonga;

(g) New Zealand's international obligations, assurances and reputation; and

(h) other aspects of the environment including amenity and landscape values.

Spill-over (externality) effects result in costs or benefits to people other than the land occupier on whose property the pests are located. They include the effects of the spread of plant or animal pests onto neighbouring properties and environmental effects that have costs or benefits to the community as a whole. For example, the spread of rabbits or seeds of plants onto neighbouring properties or damage to indigenous biodiversity are spill-over effects. The reduced risk of spill-over occurs because the Plan brings about the control of pests, thereby reducing the risk to neighbouring properties and the risk of non-producer values being affected.

The non-spill-over benefit (producer benefit) that producers receive by way of extra production and lower control costs, when they control pests on their property, occurs regardless of whether a plan is in place.

The extent to which persons contribute to the problems to be resolved by the Plan for each depends on whether their inaction has the potential to result in spill-over effects that cause significant harm to other persons or to the environment generally.

Table 32 below shows two groups of people: those who have been identified as benefiting from controlling pests (beneficiaries); and those who contribute to the pest problem (exacerbators). A full evaluation can be found in the CBA Report[7]

[7] *Meeting the requirements of the Biosecurity Act 1993 and National Policy Direction for Pest Management 2015: Analysis of costs and benefits (2018).*

Table 32: Beneficiaries and exacerbators

Pest	Beneficiaries	Exacerbators
Bennett's wallaby, rabbit.	Rural occupiers, who will benefit from economic values being protected. Neighbouring property occupiers, who will benefit from the prevention of spill-over. Regional community, who will benefit through environmental values being protected.	Occupiers who do not undertake control on their properties. Persons who knowingly distribute wallabies or rabbits to new areas.
Rook.	Rural occupiers, who will benefit from economic values being protected.	Occupiers where rooks occur on their properties. Persons who knowingly distribute rooks.
Bur daisy, nassella tussock, nodding thistle, perennial nettle.	Rural occupiers, who will benefit from economic values being protected. Neighbouring property occupiers, who will benefit from the prevention of spill-over.	Occupiers who do not undertake control on their properties. Persons who knowingly distribute any of these plant pests to new areas.
African love grass, broom, gorse, spiny broom, white-edged nightshade.	Rural occupiers, who will benefit from economic values being protected. Neighbouring property occupiers, who will benefit from the prevention of spill-over. Regional community, who will benefit through environmental values being protected.	Occupiers who do not undertake control on their properties. Persons who knowingly distribute any of these plant pests to new areas.
Wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and larch.	Rural occupiers, who will benefit from economic values being protected. Neighbouring property occupiers, who will benefit from the prevention of spill-over. Regional community, who will benefit through biodiversity, landscape and recreational values being protected.	Occupiers who do not undertake wilding conifer, contorta, Corsican, Scots, mountain and dwarf mountain pines and larch control on their properties. Persons who knowingly distribute wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and larch to new areas. Occupiers with conifer plantations, shelterbelts or amenity plantings allowing seeds to spill-over from their properties.
Bomarea, boneseed, cape ivy, old man's beard, spartina and wild Russell lupin.	Regional community, who will benefit through environmental values being protected.	Occupiers who do not undertake control on their properties.

		People who knowingly distribute any of these plant pests to new areas.
African feather grass, Chilean needle grass, false tamerisk and moth plant.	Regional community, who will benefit through environmental values being protected. Rural occupiers, who will benefit from economic values being protected.	Persons who knowingly bring any of these plant pests into the Otago region. Persons who fail to notify Otago Regional Council of any new infestations.
Banana passionfruit, Chilean flame creeper, Darwin's barberry, feral cat, feral deer, feral goat, feral pig, hedgehog, lagarosiphon, mustelids, possum, rat, sycamore, gunnera and tradescantia (all managed under site-led programmes).	Regional community, who will benefit through environmental values being protected at and adjacent to high value sites. Rural occupiers, who will benefit from economic values being protected at or adjacent to high value sites.	Occupiers who do not undertake control at or adjacent to high value sites on their properties. People who knowingly distribute any of these pests to new areas.

9.5 FUNDING SOURCES AND REASONS FOR FUNDING

The Biosecurity Act 1993 and the Local Government (Rating) Act 2002 require that funding is sought from:

- people who have an interest in the Plan;
- those who benefit from the Plan; and
- those who contribute to the pest problem.

Funding must be sought in a way that reflects economic efficiency and equity. Those seeking funds should also target those funding the Plan and the costs of collecting funding.

In general, efficiency is best achieved by targeting costs to those closest to a particular work where those paying can act in respect of those works. If the person deciding has to pay for the results of their action or inaction, they may change their behaviour to minimise costs. Doing so would lead to the least-cost outcome for society. But if another person pays those costs, the incentive to change behaviour is minimal. This may lead to a higher cost for society. Efficiency includes close targeting of costs to beneficiaries and to those contributing to the problem (exacerbators). Equity is more difficult to establish, particularly if a "public good" component exists. In general, there are no relevant guidelines available.

Practicality will determine the extent to which different beneficiaries can be targeted. There is generally a point at which the transaction and administrative costs of recovering costs from a smaller group of beneficiaries will exceed the benefits of more closely targeting that group. Alternatively, the mechanisms available may not be able to target a particular group, for example, individual land uses such as dairying. Therefore, a larger aggregate such as all rural land must be used.

The aim of the funding system should be to maximise the efficiency of resource decision-making by participants. There are two ways in which this happens. They are:

- Charging beneficiaries ensures that the decisions on whether an activity is worthwhile are closely related to the benefits received. If the beneficiaries are charged for the activity, but do not perceive the level of benefit that has been ascribed to them, they will act to reduce the charge and therefore the level of the activity. Similarly, where stakeholders demand more of an activity where they are required to pay, Otago Regional Council can be assured that the level of benefit from the activity exceeds the costs, and that the activity is being undertaken at an appropriate level.
- Charging exacerbators ensures that where a management action causes problems for other parties, the costs of those problems are fully integrated into the decision on whether the management activity is worthwhile. For pest management, the land-use decisions by land occupiers affects the level and type of pest problem. By charging those occupiers directly for these effects in a way that encourages them to take account of pest problems in their management, the most efficient resource allocation decisions are made. Ideally this leads to land occupiers seeking the most efficient means of achieving pest management objectives.

A key feature of exacerbator payments, however, is that it only achieves greater efficiency where the incentive exists for land managers to take account of the pest management objective in their decisions. Rating does not achieve this because the land manager experiences the cost regardless of whether they change their management decisions to take account of the objectives. Direct charges in the form of control costs, which reflect the level of contribution to the problem, are therefore preferred.

The funding rationale incorporates the principle that those who fund the Plan should not pay for those measures outlined in Section 5.3 for which they receive no benefit or for which another party would normally consider is its role to fund. For instance, it is inequitable to fund the environmental education component of the Plan from a rate on rural land. The rationale, therefore, adopts an activity-based approach where funding shares are identified by Plan activity. An activity-based approach allows the incremental benefit from specific activities, as opposed to pest management generally, to be assessed.

For cost allocation purposes, Otago Regional Council commissioned a review of the levels of benefit accruing to rural and regional rate paying beneficiaries and exacerbators from the activities undertaken to achieve the objectives in this Proposal. The results form part of the analysis of costs and benefits and are contained in the CBA Report, which also contains guidance on Inspection and Control. The funding formulae for service delivery (e.g. biological control), advocacy and advice (information and publicity), and monitoring, remain largely in accord with those contained in the 2009 Strategy.

There are additional new pests in the proposed Plan compared to the existing Strategy, such as those in the exclusion programme and eradication programmes' pests (for example, Chilean needle grass, moth plant), wild Russell lupin and wilding conifers. There is also a much broader range of species that are targeted for site-led programmes. Adjustments to funding formulae are made accordingly.

The funding formulae for this is set out in the following table.

Table 33: Funding formula under the Proposed Plan

	Funding formulae	
	Rural land owners and/or occupiers %	Regional Community %
African feather grass, Chilean needle grass, false tamarisk, moth plant, spiny broom, spartina		
Inspection and monitoring		100
Education and advocacy		100
Control		100
Bennett's wallaby		
Inspection and monitoring	40	60
Education and advocacy		100
Control	40	60
Rook		
Inspection and monitoring		100
Education and advocacy		100
Control	100	
Bur daisy, gorse, nassella tussock, nodding thistle, perennial nettle, rabbit, ragwort		
Inspection and monitoring	100	
Education and advocacy		100
Control	100	
African love grass, broom, wild Russell lupin		
Inspection and monitoring Production Biodiversity	 100 50	 50
Education and advocacy		100
Control Production Biodiversity	 100 50	 50
Bomarea, boneseed, cape ivy, old man's beard, wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and larch		
Inspection and monitoring		100
Education and advocacy		100
Control	100 (prevent spread)	100 (initial control)

White-edged nightshade		
Inspection and monitoring	50	50
Education and advocacy		100
Control		100
Site-led programme pests		
Inspection and monitoring		100
Education and advocacy		100
Control	By agreement	
Other activities		
Enforcement	User payers wherever possible	General rate when it is not possible

The overall level of inspection, monitoring, advice and advocacy is determined by Otago Regional Council independently of the pest problem on any particular property. On the other hand, control will vary with both the pest problem and the occupier's response to it on a particular property. It is important that occupiers bear the full consequences of their actions. This is likely to promote the best or optimal response from the point of view of the community as a whole.

The funding of costs allocated to rural occupiers will be through targeted rates applied to occupiers of rateable rural land. The rating base is land value, which reflects the potential effects of pests on land assets. Land area is an alternative rating base but it is less equitable for larger properties in the region because much of the land is not affected by spill-over of pests from neighbouring properties.

Otago Regional Council will continue to negotiate with Crown agencies to secure agreements to assist with the costs of implementing the Plan.

9.6 ANTICIPATED COSTS OF IMPLEMENTING THE PLAN

The anticipated costs of implementing the proposed Plan reflect a best estimate of expenditure levels. Funding levels will be further examined and set during subsequent Long Term Plan and Annual Plan processes. While community funding is mainly sourced from rates, alternative funding sources will be sought by the Otago Regional Council. Such funds will off-set rates or be used as a value-added component in appropriate circumstances.

The funding of the implementation of the proposed Plan is from a region-wide general rate (or targeted rate as applicable), set and assessed under the Local Government (Rating) Act 2002, and in determining this, the Otago Regional Council has had regard to those matters outlined in section 100T of the Biosecurity Act.

It is anticipated that the estimated annual cost to the ORC for implementing the Plan will be **$1,857,000.**

Where the implementation of this Plan is to be funded by a targeted rate, the matters outlined in section 100T of the Biosecurity Act will be given specific regard to as part of the Annual Plan or Long Term Plan process.

9.7 FUNDING LIMITATIONS

There are no unusual administrative problems or costs expected in relation to recovering costs from any of the persons who are required to pay. It is recognised that there may be a need to recover enforcement costs for some exacerbators through the courts. In some cases, for example where not all exacerbators can be identified, full cost recovery will not be realised and a rating contribution will be required.

Glossary

Act	means the Biosecurity Act 1993, including any accompanying amendments and regulations.
Adjacent	means, for the purpose of this Plan, a property that is next to, or adjoining, another property.
Artificial watercourse	means a watercourse that is created by human action. It includes an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal channel. It does not include artificial swales, kerb and channelling or other watercourses designed to convey stormwater.
Authorised Person	has the same meaning as in the Biosecurity Act 1993: "*a person for the time being appointed an authorised person under section 103 of this Act*."
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.
Benefits	includes benefits of any kind, whether monetary or non-monetary.
Beneficiaries	means the receivers of benefits accruing from the implementation of a pest management measure or plan.
Biodiversity	means the variability among living organisms from all sources including, among other things, terrestrial, marine, and other aquatic ecosystems, and the ecological complexes of which they are part. This includes diversity within species, between species, and of ecosystems.

Biological Control	means the introduction and establishment of natural enemies that will prey on or adversely affect a pest or other organisms to be controlled.
Braided river	means any river with multiple, successively divergent and rejoining channels separated by gravel islands.
Capital Value	has the same meaning as in the Rating Valuations Act 1998: *"capital value of land means, subject to sections 20 and 21, the sum that the owner's estate or interest in the land, if unencumbered by any mortgage or other charge, might be expected to realise at the time of valuation if offered for sale on such reasonable terms and conditions as a bona fide seller might be expected to require."*
Consultation	the communication of a genuine invitation to give advice and a genuine consideration of that advice.
Containment area	an area of pest infestation managed differently from the rest of Otago.
the Council	Otago Regional Council
Crown	means the New Zealand Government.
Costs	includes costs of any kind, whether monetary or non-monetary.
Destroy	means pull, breakdown, demolish, make useless, kill, cause to cease to exist.
Direction	in relation to Part 6 powers under the Act means a notice issued in accordance with section 122 of the Biosecurity Act 1993 requesting a person or land occupier to carry out certain work or measures.
Distribute	means to transport or in any way spread a pest.
Ecosystem	means a dynamic complex of plant, animal and micro-organism communities and their non-living environment, interacting as a functioning unit.
Effect	has the same meaning as in the Biosecurity Act 1993, unless the context otherwise requires, and: a. includes the following, regardless of scale, intensity, duration, or frequency: i. a positive or adverse effect; and ii. a temporary or permanent effect; and iii. a past, present, or future effect; and iv a cumulative effect that arises over time or in combination with other effects; and b. also includes the following: i. a potential effect of high probability; and ii. a potential effect of low probability that has a high potential impact
Environment	has the same meaning as in the Biosecurity Act 1993: "*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."*
Environmental values	means the environment, human health, enjoyment of the natural environment, and the relationship between Māori, their culture, and their traditions and their ancestral lands, waters, sites, wāhi tapu, and taonga.
Exacerbator	means the person aggravating or contributing to a particular pest management problem by action or inaction.
Feral	means wild or otherwise unmanaged.
Forest plantation	means a forest deliberately established for commercial purposes, being at least 1ha of continuous forest cover of forest species that has been planted and has or will be harvested or replanted.
Goods	is defined under the Act as any personal property.
Good Neighbour Rule	has the same meaning as in the Biosecurity Act 1993: "*means a rule to which the following apply:* *a. it applies to an occupier of land and to a pest or pest agent that is present on the land; and* *b. it seeks to manage the spread of a pest that would cause costs to occupiers of land that is adjacent or nearby; and* *c. it is identified in a regional pest management plan as a good neighbour rule; and* *d. it complies with the directions in the national policy direction relating to the setting of good neighbour rules."*
Habitat	means the place or type of site where an organism or population normally occurs.
Harmful organisms	means organisms that have not been declared 'pests' for the purposes of this Plan because, although they may have significant adverse effects, regulatory responses are not considered appropriate or necessary.
Indigenous	a native of New Zealand.
Kāi 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.
Landowner	has the same meaning as occupier in the Biosecurity Act 1993: *"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 or control of the place."
Management Agency	management agency means the Otago Regional Council, the agency given the task of implementing the Strategy or has the same meaning as in the Biosecurity Act 1993: "*the Department, authority, or body corporate specified in a pest management strategy as the agency given the task of implementing the strategy."* For the purposes of this document, Otago Regional Council is the management agency for pests and other organisms to be controlled in the Otago Region.
Manawhenua	Those with rangatiratanga (chieftainship or authority) for a particular area of land or district.
Modified McLean Scale	This scale assesses rabbit population levels.
Monitoring	in relation to a pest or other organisms to be controlled means to observe and measure the occurrence or non-occurrence of a pest or other organisms to be controlled.
National Policy Direction	in respect of this Plan, means the currently operative National Policy Direction for Pest Management.
Net Present Value (NPV)	means the difference between the total benefits in present day terms and the total costs in present day terms at a specified discount rate.
Non braided river	means a continually or intermittently flowing body of fresh water that is not a braided river; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity generation, and farm drainage canal).
Occupier	has the same meaning as in the Biosecurity Act 1993: *"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 or control of the place."*
Operational Plan	means a plan prepared by the Management Agency under Section 100B of the Act.
Organism	has the same meaning as in the Biosecurity Act 1993: *"a. Does not include a human being or a genetic structure derived from a human being:* *b. Includes a micro-organism:* *c. Subject to paragraph (a) of this definition, includes a genetic structure that is capable of replicating itself (whether that structure comprises all or only part of an entity, and whether it*

	comprises all or only part of the total genetic structure of an entity): *d. Includes an entity (other than a human being) declared by the Governor-General by Order in Council to be an organism for the purposes of this Act:* *e. Includes a reproductive cell or developmental stage of an organism:* *f. Includes any particle that is a prion."*
Person	has the same meaning as in the Biosecurity Act 1993: *"includes the Crown, a corporation sole, and a body of persons (whether corporate or unincorporate)."*
Pest	has the same meaning as in the Biosecurity Act 1993: *"an organism specified as a pest in a pest management plan."*
Pest agent	has the same meaning as in the Biosecurity Act 1993: *"in relation to any pest, means any organism capable of—* *a. helping the pest replicate, spread, or survive; or* *b. interfering with the management of the pest"*
Pest Management Plan	has the same meaning as in the Biosecurity Act 1993: *"a plan, made under Part 5 of this Act, for the management or eradication of a particular pest or pests."*
Plant	means any plant, tree, shrub, herb, flower, nursery stock, culture, vegetable, or other vegetation; and also includes fruit, seed, spore and portion or product of any plant; and also includes all aquatic plants.
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.
Propagation	means to multiply or reproduce by sowing, grafting, breeding or any other way.
River	means a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity generation, and farm drainage canal).
Rule	means a rule included in a pest management plan in accordance with section 73(5) of the Biosecurity Act 1993.
Rural Zoned Land	means land zoned for rural use under any territorial district plan applicable within the Otago Region. This includes rural residential and lifestyle zones but excludes large lot residential.
Sale	includes bartering; offering for sale; exposing, or attempting to sell; or having in possession for sale; or sending or delivery for sale;

	causing or allowing to be sold, offered, or exposed for sale; and also includes any disposal whether for valuable consideration or not. "Sell" has a corresponding meaning.
Unwanted organism	has the same meaning as in the Biosecurity Act 1993: "*means any organism that a chief technical officer believes is capable or potentially capable of causing unwanted harm to any natural and physical resources or human health; and* *a. includes—* *i. any new organism, if the Authority has declined approval to import that organism; and* *ii. any organism specified in Schedule 2 of the Hazardous Substances and New Organisms Act 1996; but* *b. does not include any organism approved for importation under the Hazardous Substances and New Organisms Act 1996, unless—* *i. the organism is an organism which has escaped from a containment facility; or* *ii. a chief technical officer, after consulting the Au- thority and taking into account any comments made by the Authority concerning the organism, believes that the organism is capable or potentially capable of causing unwanted harm to any natural and physical resources or human health"*
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 conifer	Wilding conifers are any introduced conifer tree, including (but not limited to) any of the species listed in Table 3, established by natural means, unless it is located within a forest plantation, and does not create any greater risk of wilding conifer spread to adjacent or nearby land than the forest plantation that it is a part of. For the purposes of this definition, a forest plantation is an area of 1 hectare or more of predominantly planted trees. This also excludes existing planted conifers of less than 1ha, such as windbreaks and shelterbelts at March 2019.
Wild Russell lupin	Wild Russell lupins are Russell lupins that are established by natural means.

Appendices

APPENDIX 1 ORGANISMS OF INTEREST

Common name	Scientific name
Plants	
Blackberry	*Rubus fruticosus*
Boxthorn	*Lycium ferocissimum*
Briar	*Rosa rubiginosa*
Buddleia	*Buddleja davidii*
Burdock	*Arctium minus*
Convolvulus	*Convolvulus arvensis*
Cotoneaster	*Cotoneaster* spp.
Cotton thistle	*Onopordum acanthium*
Egeria	*Egeria densa*
Giant hogweed	*Heracleum mantegazzianum*
Hieracium (hawkweed)	*Hieracium* spp.
Horehound	*Marrubium vulgare*
Hawthorne	*Crataegus monogyna*
Japanese honeysuckle	*Lonerica japonica*
Lake snow	*Lindavia intermedia*
Periwinkle	*Vinca major*
Reed sweetgrass	*Glyceria maxima*
Rowan	*Sorbus aucuparia*
Saltmarsh rush	*Juncus geraldii*

Thyme	*Thymus vulgaris*
Wild ginger	*Hedychium gardnerianum*
Willow	*Salix* spp.

Animals	
Goose Canada White/domestic	 *Branta canadensis* *Anser* spp.
Wasp	*Vespula* spp.
Mouse	*Mus musculus*

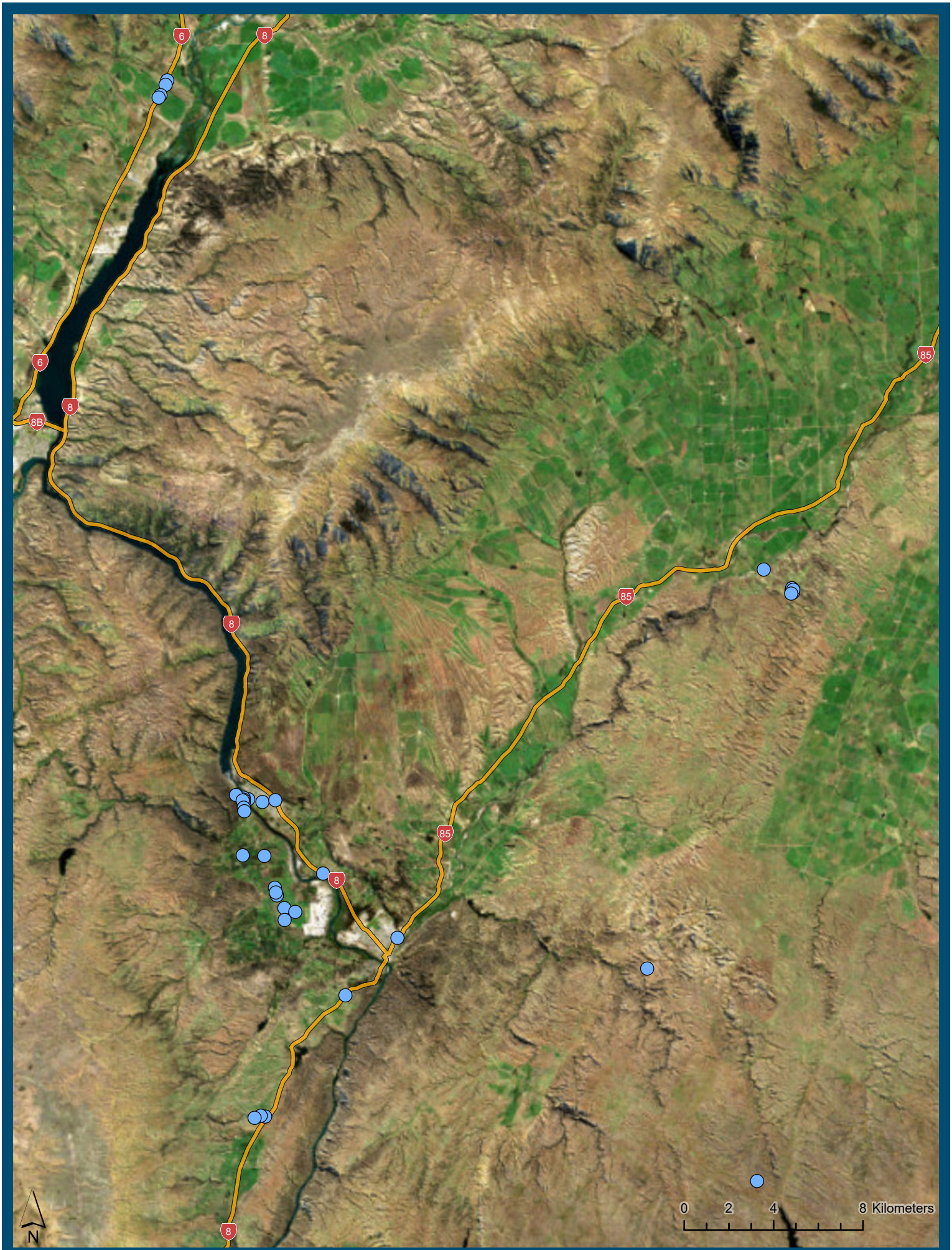
Marine	
Asian paddle crab	*Charybdis japonica*
Mediterranean fanworm	*Sabella spallanzanii*
Sea couch	*Agropyron pungens*
Sea squirts	*Styela clava, Eudistoma elongatum, Pyura doppelgangera and Didemnum vexillum*
Undaria	*Undaria pinnatifida*

APPENDIX 2 MODIFIED MCLEAN SCALE

This scale assesses rabbit population levels.

1. No sign found. No rabbits seen.
2. Very infrequent sign present. Unlikely to see rabbits.
3. Odd rabbits seen; sign and some buck heaps showing up. Pellet heaps spaced 10 metres or more apart on average.
4. Pockets of rabbits; sign and fresh burrows very noticeable. Pellet heaps spaced between 5 metres and 10 metres apart on average.
5. Infestation spreading out from heavy pockets. Pellet heaps spaced 5 metres or less apart on average.
6. Sign very frequent with 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 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 pellet heaps often less than 5 metres apart over the whole area. Rabbits likely to be seen in large numbers over the whole area.

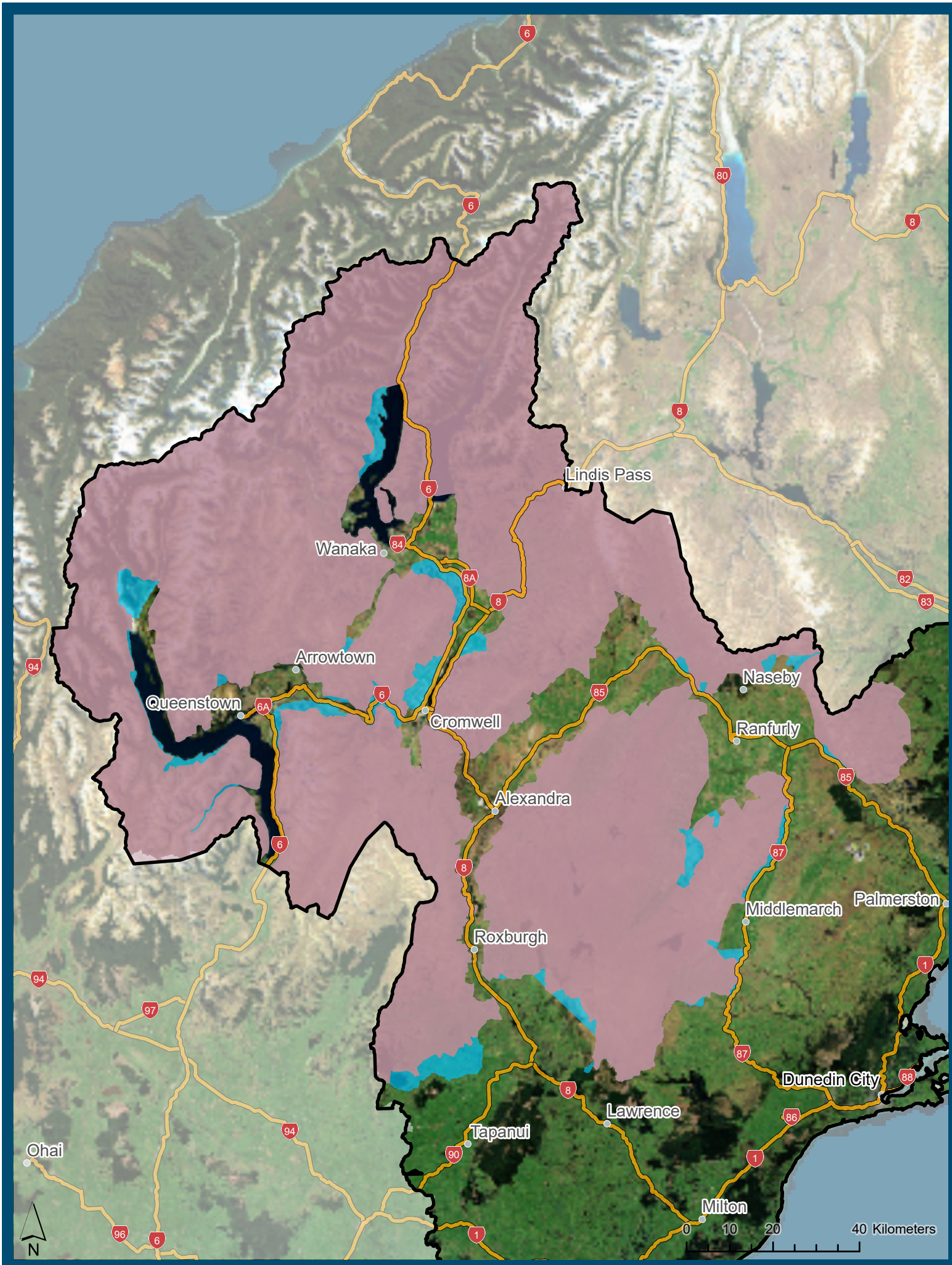
APPENDIX 3 MAPS



Map 1: African Love Grass

- African Love Grass Sites

Otago Regional Council

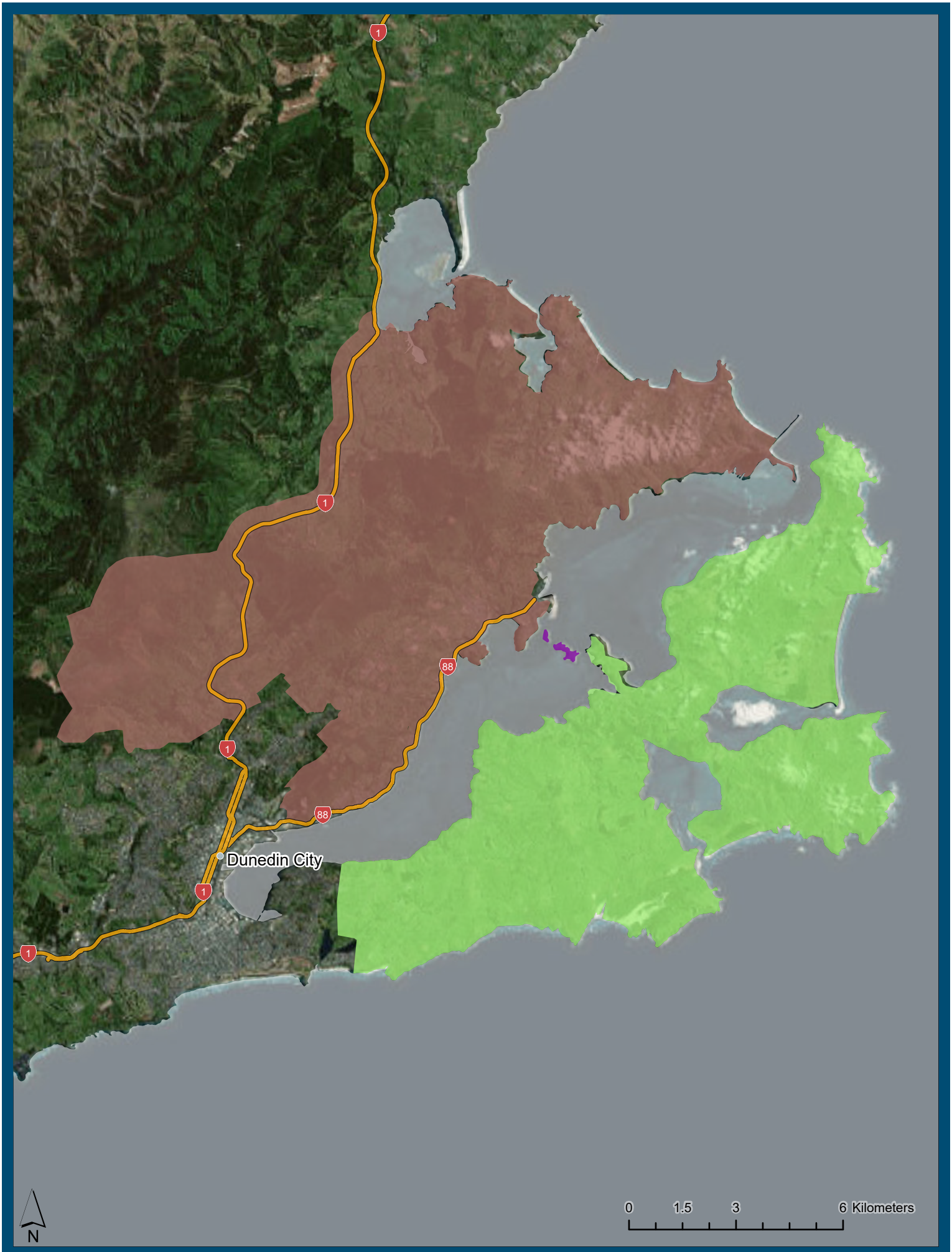


Map 2: Gorse and Broom Free Areas

Gorse and Broom Free Areas

New Gorse and Broom Free Areas

Otago Regional Council



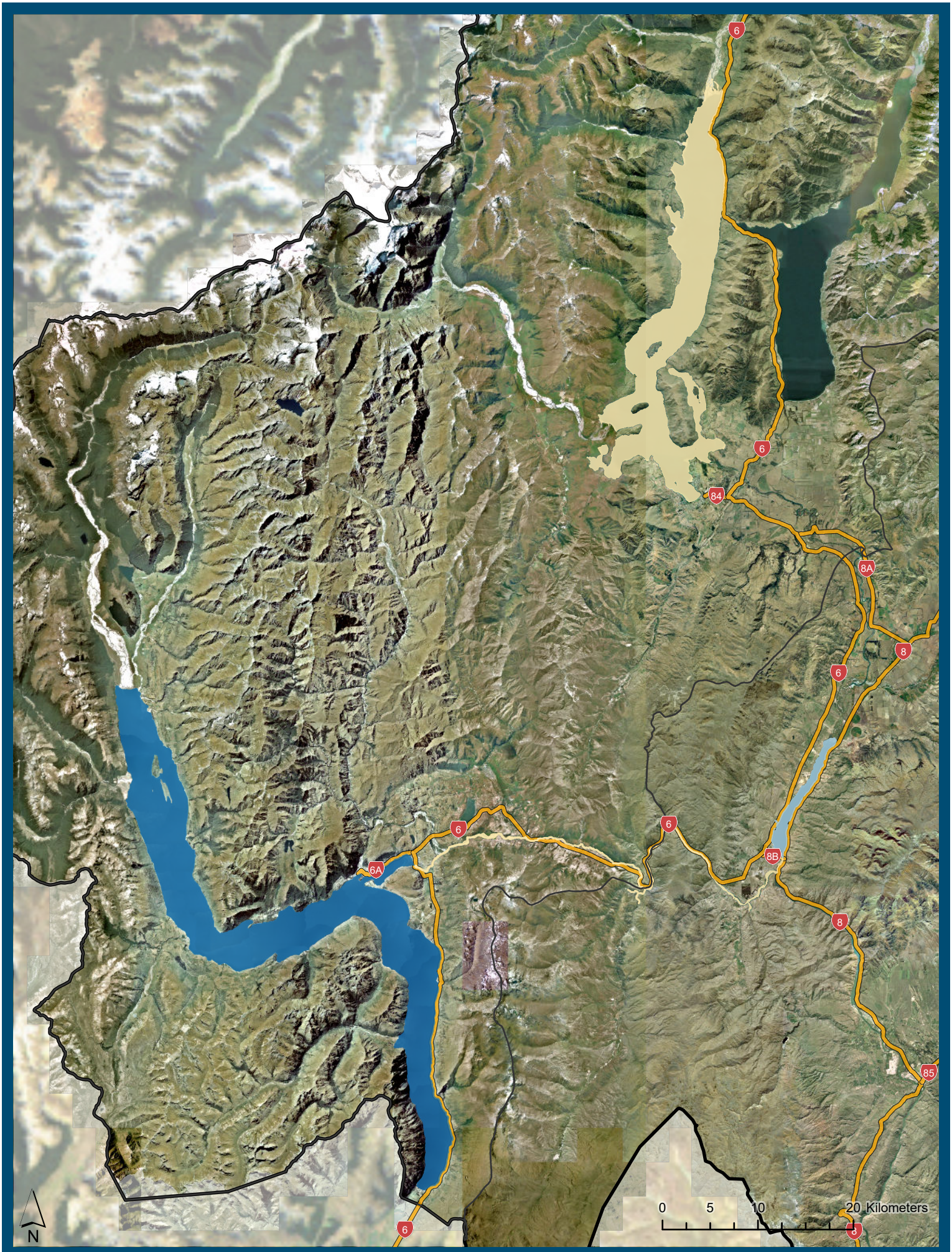
Map 3: Dunedin Site Led Programmes

Otago Peninsula

Quarantine and Goat Islands

West Harbour – Mt.Cargill

Otago Regional Council



Map 4: Lagarosiphon Site Led Programme

Lake Dunstan Sustained Control Area

Lake Wakatipu Exclusion Area

Lake Wanaka and Kawarau River Progressive Containment Area

Otago Regional Council