Environmental Implementation Committee 5 March 2024

Meeting will be held in the Council Chamber at Level 2, Philip Laing House
144 Rattray Street, Dunedin
ORC Official YouTube Livestream

Members:
Cr Kate Wilson (Chair)
Cr Alexa Forbes
Cr Gary Kelliher
Cr Lloyd McCall
Cr Michael Laws
Cr Kevin Malcolm
Cr Tim Mepham
Cr Andrew Noone
Cr Gretchen Robertson
Cr Alan Somerville
Cr Elliot Weir

Senior Officer: Richard Saunders, Chief Executive

Meeting Support: Kylie Darragh, Governance Support Officer

05 March 2025 01:00 PM

Agenda Topic	Page
Agenda	1

1. WELCOME

2. APOLOGIES

No apologies were received prior to publication of the agenda.

3. PUBLIC FORUM

No requests to speak were received prior to the publication of this agenda.

4. CONFIRMATION OF AGENDA

Note: Any additions must be approved by resolution with an explanation.

5. DECLARATION OF INTERESTS

Members are reminded of the need to stand aside from decision-making when a conflict arises between their role as an elected representative and any private or other external interest they might have. Councillor Declarations of Interests are published to the ORC website.

6. PRESENTATIONS

10. CLOSURE

Otago Regional Council

Environmental Implementation Committee
MINUTES

Minutes of an ordinary meeting of the Environmental Implementation Committee held in the Council Chamber, Level 2 Philip Laing House, 144 Rattray Street, Dunedin on Thursday 7 November 2024, commencing at 9:00 AM.

https://www.youtube.com/live/7PNHGRv7mbY?si=QcXzCNQFYwP6nRax

PRESENT

Cr Kate Wilson	*(Chairperson)*
Cr Alexa Forbes	*(Online)*
Cr Gary Kelliher	
Cr Kevin Malcolm	
Cr Lloyd McCall	
Cr Tim Mepham	
Cr Andrew Noone	
Cr Gretchen Robertson	
Cr Alan Somerville	
Cr Elliot Weir	

1. WELCOME

Chair Wilson welcomed Councillors, members of the public and staff to the meeting at 9am with a karakia Staff present included Richard Saunders (Chief Executive), Anita Dawe (GM Regional Planning and Transport), Jo Gilroy (GM Environmental Delivery), Tami Sargeant (GM People and Corporate) Amanda Vercoe (GM Strategy and Customer, Deputy CE), Libby Caldwell (Manager Environmental Implementation) Sarah Irvine (Team Leader Project Delivery), Alison Turner (Land Management Advisor), Kylie Darragh (Governance Support).

2. APOLOGIES

No apologies had been received. Cr Laws absence was noted.
The Chair acknowledged the recent resignation of Cr Bryan Scott as a councillor and co-chair of this committee.

3. PUBLIC FORUM

No requests to address the Committee under Public Forum were received.

4. CONFIRMATION OF AGENDA

It was moved by Chair Wilson and seconded by Cr Noone:
That the agenda be confirmed as published.
MOTION CARRIED

5. DECLARATIONS OF INTERESTS

No changes to Councillor Declarations of Interests were noted.

6. PRESENTATIONS

No presentations were held.

7. CONFIRMATION OF MINUTES

Resolution: Cr Wilson Moved, Cr Robertson Seconded
That *the minutes of the Environmental Implementation Committee meeting held on 8 August 2024 be received and confirmed as a true and accurate record.*
MOTION CARRIED

8. OPEN ACTIONS FROM RESOLUTIONS OF THE COMMITTEE

There are currently no open actions from resolutions of the Committee.

9. MATTERS FOR CONSIDERATION

9.1. Freshwater Improvement Projects Update

[YouTube 12:40] The paper was discussed in two parts, first Toitū te Hakapupu Pleasant River Catchment Restoration project for which the co-chair, Rob Philips, was in attendance. Secondly updates on Tomohaka/Tomahawk Lagoon, Lake Tuakitoto and Lake Hayes/Waiwhakaata; and the Ministry for Primary Industries (MPI) funded Hill Country Erosion project were provided. Libby Caldwell, Manager Environmental Implementation, Melanie White, Project Delivery Specialist – Jobs for Nature; Sarah Irvine, Team Leader Project Delivery, Alison Turner, Land Management Advisor and Joanna Gilroy, General Manager Environmental Delivery were present to respond to questions.

Cr Weir joined the meeting at 9:29 am.

Resolution EIC24-115: Cr Forbes Moved, Cr McCall Seconded
That the Committee:

1. ***Notes** this report.*
2. ***Notes** the progress of implementation activities that are occurring on the water quality projects delivered by ORC, partners and the community as detailed in this report.*
3. ***Notes** that the Toitū Te Hakapupu project is in its last year of delivery to successfully deliver on all the objectives of the MfE funding deed.*
4. ***Notes** the progress made on the MPI funded Hill Country Erosion project.*

MOTION CARRIED

9.2. Corbicula Fluminea Update

[YouTube 1:01:30] This report provided an update on work undertaken in response to the notification of an incursion of exotic freshwater clam species (Corbicula fluminea and Corbicula australis) in North Island. Sarah Irvine, Team Leader Project Delivery; Libby Caldwell, Manager Environmental Implementation, Joanna Gilroy, General Manager Environmental Delivery were available to respond to questions.

It was moved by Cr Wilson, seconded by Cr Noone
That the Committee adjourn for 5 minutes to draft the additional recommendation**.**
MOTION CARRIED

The Committee recommenced at 10:25 am

Resolution EIC24-116: Cr Kelliher Moved, Cr Malcolm Seconded
That the Committee:

1. ***Notes** this report.*
2. ***Recommends to Council** that the Chairperson works with other South Island regional councils to write to the Minister for Biosecurity emphasising the high level of concern at the risk of Corbicula fluminea and Corbicula australis spreading to the South Island and urging the Minister to ensure adequate funding is in place for containment measures and introducing appropriate requirements for all waterborne items to be suitably cleaned prior to departing the North Island.*

MOTION CARRIED

10. CLOSURE

There was no further business and Chair Wilson declared the meeting closed at 10:34 am.

_____ _____
Chairperson Date

9.1. Integrated Catchment Management (ICM) Programme Update

Prepared for: Environmental Implementation Committee

Report No. GOV2501

Activity: Governance Report

Author: Sophie Fern, Catchment Action Planner, Anna Molloy Principal Advisor Environmental Implementation, Libby Caldwell Manager Environmental Implementation

Endorsed by: Joanna Gilroy, General Manager Environmental Delivery

Date: 5th March 2025

PURPOSE

[1] To provide an update on the Integrated Catchment Management (ICM) Programme, share an external evaluation of the process for developing the first Catchment Action Plan (CAP) and seek the nomination of a Councillor with interest / representation in the Taiari catchment to join the ICM Working Group.

EXECUTIVE SUMMARY

[2] In this quarter significant progress has been made with on the ICM programme. A key milestone in this quarter includes the completion of the Catlins Catchment Action Plan (CAP). The focus in the Catlins is now on the delivery of actions from the CAP. The Upper Lakes Catchment Action Plan work is underway with a second workshop scheduled in early March. The Lake Hawea Stakeholder Group completed their CAP in November 2024. The next area scheduled to commence the CAP development phase is the Taiari Freshwater Management Unit (FMU).

[3] The CAP development process has been evaluated by an external consultant. This evaluation was planned as part of the pilot process and outlines what worked well and what could be considered for improvement and is detailed in Attachment 1. Several actions recommended have already been implemented, or are underway.

[4] In line with the process for the development of the Catlins and Upper Lakes CAPs, the nomination of a Councillor to the ICM Working Group for the Taiari/Taieri FMU is sought.

RECOMMENDATION

That the Environmental Implementation Committee recommends that Council:

1. ***Notes** this report and the progress made on the ICM programme in this quarter.*
2. ***Notes** the evaluation report on the process for the pilot CAP and the steps to implement the recommendations from the evaluation.*
3. ***Nominates** a Councillor with interest / representation in the Taiari/Taieri catchment to join the ICM Working Group.*

BACKGROUND

[5] The ICM Programme has been underway since August 2022, when the ICM Working Group was established and the Catlins was selected by Council as the first CAP to be developed. The ICM Working Group meets every 2 months and provides input and guidance to the ICM Programme. The ICM Working Group is chaired by Cr McCall and includes representation from Cr Kelliher (alternate Cr Forbes). These Councillors were nominated once the ICM Programme work started in the Upper Lakes.

[6] The Catlins Integrated Catchment Group (ICG) was established in September 2023 to co-develop the Catlins CAP. The Catlins ICG began meeting in October 2023 and presented their CAP to Council for endorsement in November 2024.

[7] The Upper Lakes ICG began meeting in August 2024 to develop a CAP based on the Queenstown Lakes District Council boundary.

[8] In addition to the CAPs under the ICM Programme, funding was received from the Ministry for Environment to employ a Catchment Group Planner who would work with interested catchment groups to develop at scale CAPs. Using the same approach enables these smaller scale CAPs to be more easily incorporated into the larger landscape scale CAPs when they begin.

[9] The CAP scheduled to begin after the Upper Lakes is the Taiari/Taieri. Facilitating the development of a Catchment Action Plan is the first task for the Kairuruku/Project Coordinator, a joint role that is funded by the Department of Conservation and Council.

[10] As part of the pilot process for the first CAP, and to reflect the importance of seeking feedback an external evaluation of the CAP development process was included in the work plan. This external evaluation was conducted by Emergence Hub who were asked to determine the success of the Catlins pilot CAP process and provide the ICM Team with information that will allow them to adapt their planning and process to improve the product for future CAP development.

DISCUSSION

Catlins CAP Update

[11] In this quarter, The Catlins CAP was endorsed by Council on 20 November 2024. Council also approved $100,000 to be used for actions that deliver on strategies within the CAP.

[12] The Catlins ICG met in December 2024 to decide on a pathway forward and discuss key strategies from the CAP to be delivered in the next 12 months. Many of the existing ICG agreed to continue as part of a CAP Governance Group. The three key strategies to focus on for the next 12 months were identified as invasive mammal and bird control, weed control, and sustainable forestry and farming.

[13] Several members also expressed interest in being involved in subgroups responsible for leading the delivery of key strategies.

[14] As per the broad framework presented at the November Council meeting, ORC staff will support the CAP Governance Group and provide project support where relevant. The support to be provided by the ICM Team will be dependent on their capacity to begin a new CAP development process (scheduled to be the Taiari/Taieri) concurrently with CAP delivery. Support will also be provided by Catchment Advisors and other staff members from other teams as needed.

[15] The Catlins CAP Governance Group held their first meeting on 30 January 2025. At this meeting they:

a. Agreed to the timeline to develop projects for ORC's grant focusing on the three priority strategies; and
b. Formed strategy groups who will develop projects that deliver on the three priority strategies.

[16] The timeline proposed for the projects to apply for funding is:

a. Project Proposals due March 31.
b. ICM team to collate and distribute the proposals to go to the Governance Group.
c. Governance Group meets before Easter (week of April 14) to recommend projects to ORC for funding.

[17] There will be a level of information needed for the funding of the projects, but this will be in line with the level of risk and be administratively clear for people. The Catlins CAP Governance Group will meet again on March 4 2025.

[18] A further update on progress with supporting and enabling the group and community to deliver the Catlins CAP will be given next quarter.

Upper Lakes CAP Update

[19] The Upper Lakes ICG held its first meeting in August 2024. Another meeting was held in September and their first workshop was held in October. A second workshop was held in early December and the next one is planned for early March 2025. Since the initial appointment of members, the ICG has elected two co-chairs and a tangata whenua representative nominated by Te Ao Marama has joined the group.

[20] Work to date includes developing, a draft vision, grouped environmental values and linked socio-economic values, identification of pressures acting on these values as well as exploring likely causes (drivers) of the pressures. The ICG has also started to identify actions underway that address the pressures (or drivers).

[21] The March workshop will:

a. Identify key ecological attributes for each values (what do we measure to understand the health of the value).
b. Set goals for the values (where do we want the health to be).
c. Analyse pressures – what is the scope, severity or irreversibility of the pressure.
d. Start to look at what actions might be missing to mitigate pressures (or improve the values).

[22] The ULICG is still waiting for mana whenua representation from Otago based rūnaka. However, in the interim, Aukaha are helping with developing a cultural narrative to underpin the CAP and attending workshops where possible.

Taiari/Taieri CAP

[23] The Taiari/Taieri CAP was originally due to start in October 2024 (at the completion of the Catlins CAP). However, an opportunity to align with the current Nga Awa (Te Mana o Taiari) project through co-funding a project coordinator (with DOC) to lead the CAP development meant a slight delay while that project coordinator role was recruited.

[24] The recruitment was completed in January 2025 and the CAP development process will begin as soon as possible. The Project Coordinator role is hosted by Aukaha and supported by both ORC's ICM Team and DOC's Nga Awa team.

[25] The Te Mana o Taiari Project also has a governance group with membership from ORC, DOC and mana whenua. This group will be involved in guiding the CAP process alongside the ICM Working Group.

[26] Whilst there is a slightly different Governance structure in the Taiari/Taieri, it is anticipated that the process for the development of the CAP in this area will mirror the others in the programme. The aim of the CAP is also the same – to build on and complement work already completed in this area.

[27] In line with the process for the Catlins and Upper Lakes CAPs, involvement from a Councillor in the Taiari/Taieri ICG is sought.

Catchment Group CAPs

[28] The Lake Hawea Stakeholder Group completed their CAP in November 2024. The Group will be responsible for delivery of this CAP and the ORC has a Catchment Advisor who attends meetings to provide advice or support where appropriate.

[29] The next Catchment Group based CAP began on 26 February with the Upper Taiari Wai Catchment Group. This work builds on the planning undertaken as part of the Tiaki Māniatoto Project, and will be aligned with the wider landscape scale Taiari CAP. Although the key difference is the Catchment Group Planning helps facilitate development of CAPs for the existing group, so the vision and goals are for that group and what they want to achieve over the period of the plan.

[30] Having oversight of the staff involved in both CAPs processes will enable and ensure alignment between the plans where appropriate.

Catlins CAP – Evaluation

[31] The pilot CAP development process was evaluated by an external evaluation consultant. This evaluation was planned as part of the establishment of the ICM programme. The final report is attached as Attachment 1. The below evaluation of the recommendations from the report outlines what worked well and what could be considered for improvement.

[32] The ICM Working Group and the ICM Team are working on the relevant recommendations for Upper Lakes and Taiari CAP processes, noting that several have already been addressed as they came up in the mid-term evaluation.

[33] Table 1 below summarises the recommendations from the report and action being taken.

Table 1: Recommendations and actions for CAP development process

Theme	Recommendation	Action
Mana Whenua	Mana whenua perspectives could be strengthened by appointing a mana whenua co-chair (alongside the community chair)	Meeting with Aukaha and Te Ao Marama and ORC's Iwi Partnership and Engagement Advisor focussed on what is needed for ICM programme, key points being: • making sure we provide appropriate support to mana whenua representatives, including cultural narrative up front, clear expectations of rep and their role, adjusting timing for feedback loops, support from ORC Iwi partnership. • Involvement in ongoing governance for implementation of the CAP • Exploring the opportunities that could be presented by Te Mana o Taiari, where there is an existing governance structure with rūnaka representation.
	Explore what mana whenua policy support might be needed in ICG meetings – e.g. include people with insights about rūnaka policy – TAMI or Aukaha rep.	
	Allow more time between ICG workshops to get feedback from the Rūnaka on ICG decision-making	
	Invite ORC ICM Team and ICG members to visit marae and significant places for mana whenua	
	Continue exploring capacity and resourcing constraints of mana whenua – eg. More than 1 rep	
	Strengthen the emphasis placed on mana whenua values, traditional knowledge and interests – eg establish a forum for the ORC and Rūnaka to work together	
Pre-planning	Undertake comprehensive stakeholder analysis	A more comprehensive stakeholder analysis was undertaken for Upper Lakes and will be improved through development of a template for future CAPs.
	Work with stakeholders to understand how the CAP development process and outputs can be best communicated and how feedback might be captured and incorporated into CAP versions.	A communications plan that includes wider consultation at key milestones is being developed in Upper Lakes and will be utilised as relevant in future CAPs.
Recruitment	Allow for more timing and structure in the selection process	Depending on the selection process used (based on stakeholder analysis) this will be incorporated. For example, in Upper Lakes there was no need for selection as all who applied were recommended.
	Remunerate ICG members to acknowledge the knowledge they bring and their time commitments.	No change proposed at this time.
Developing	Allow more reflection time to unpack and document tensions in	Adjusting timeframes between workshops is being explored and utilised in Upper Lakes

the CAP	decision-making	already.
	Develop a CAP template and sharing interim drafts (and spatial planning tools) via an online hub to enable more people to contribute to CAP development.	A template has been created. This will be updated as the CAP develops and shared vis the hub at key milestones.
	More monitoring methodology expertise – not relying on ICG members to develop monitoring methods.	The ICM Team is developing monitoring indicators for values, checking these with science and taking to the ICG rather than starting with 'blank sheet'.
	Provide facilitator training to ensure efficient time use during CAP development workshops	Facilitator training was done for the ICM Team in February 2024. Further training in engagement has also been undertaken. This will continue as part of staff learning and development.
	Consider adapting the Conservation Standards process and tools (where feasible) to ensure the process is 'fit for purpose' in different catchments and acknowledges wider social and cultural needs that might impact on CAP effectiveness.	This is being done and was a key reason for using the conservation standards – they can be adapted to the needs of the group.
	Review timeframes and make sure they are realistic for the stages of the planning	As above, more time between workshops is being explored, overall timeframes may adjust if needed.
Completed CAP	Check the scientific validity of information	The Science Team helped with 'sense checking' the CAP content throughout. This will continue, with the intention a more structured approach in place.
	Ensure more buy-in and oversight from ORC governance to strengthen the alignment between the CAP and ORC objectives	An internal ORC wide Managers Group is being explored to strengthen the alignment across ORC where appropriate. Will look at potential options for alignment of objectives and outcomes.
	Clarify what implementing a catchment plan will look like and resourcing at an earlier stage in the CAP development process (where possible).	The Catlins delivery phase is establishing a useful framework.

OPTIONS

[34] Council may choose to nominate a Councillor to the Taiari/Taieri ICM Working Group. This would improve the Group's input to the Taiari/Taieri CAP process and help with connection to that community. This is the recommended option and is consistent with the approach taken to date.

[35] Alternatively, Council may decide to not nominate a Councillor to join the ICM Working Group. This would be inconsistent with the approach taken to the development of other CAPs.

CONSIDERATIONS

Strategic Framework and Policy Considerations

[36] There are no strategic framework and policy considerations for this paper.

Financial Considerations

[37] $100,000 has been allocated to support the delivery of the Catlins CAP. Work is occurring with this group to prioritise where to spend this budget which has already been allocated through the Long-Term Plan 2024-2034 process.

[38] The ICM work is budgeted for and is being completed within existing budgets.

Significance and Engagement

[39] The ICM Programme include collaboration with mana whenua partners at several 'touch points' – the ICM Working Group, rūnaka representation on Integrated Catchment Groups. This is being strengthened through ongoing discussion and support for our mana whenua partners in ICM.

Legislative and Risk Considerations

[40] There are no legislative and risk considerations for this paper.

Climate Change Considerations

[41] There are no specific climate change considerations for this paper. Each CAP will consider climate change impacts and how actions may be developed to mitigate the impact on the values identified.

Communications Considerations

[42] Arising from the evaluation recommendations and ongoing work in the ICM Programme, future communication planning is including key milestones at which the draft CAP work is shared with a wider community, beyond the ICG.

NEXT STEPS

[43] The ICM programme will continue to support the delivery of the Catlins CAP, and the development of the Upper Lakes and Taiari/Taieri CAPs.

ATTACHMENTS

1. December 2024 Final Evaluation Report Catlin's CAP [**9.1.1** - 24 pages]

[redacted]

EMERGENCE HUB

Insights for collaborative advantage

EVALUATION REPORT

CATLINS CATCHMENT ACTION PLAN PILOT PROJECT

Emergence Hub

December 2024

[redacted]

Evaluation Report Catlins Catchment Action Plan Pilot Project

Report Prepared For:

Anna Molloy, Principal Advisor Environmental Implementation, Otago Regional Council

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Acknowledgements:

The evaluation team would like to thank all participants in our evaluation of the Catlins Catchment Action Plan (CAP) development process. Specifically, we would like to thank the Otago Regional Council (ORC) Integrated Catchment Management (ICM) Team for providing documentation on the pilot of the Catlin's CAP development process, welcoming the evaluation team as part of two of the Catlins Integrated Catchment Group (CICG) meetings and participating in interviews to provide insights on the effectiveness of the CAP development process from an ORC perspective. We would also like to acknowledge the valuable insights provided by CICG members and the Integrated Catchment Management Working Group (ICMWG).

[1] All authors are members of *Te Maea: Māori and Indigenous Economy and Enterprise Network* in the University of Otago Business School (https://www.otago.ac.nz/business/research/te-maea).

[redacted]

EXECUTIVE SUMMARY

This report presents the findings from an evaluation of a pilot Catlins Catchment Action Plan (CAP) development process facilitated by the Otago Regional Council's (ORC) Integrated Catchment Management (ICM) Team between October 2023 and October 2024. Key findings relate to the effectiveness of processes used by the ICM Team to recruit and select members of the Catlins Integrated Catchment Group (CICG) and support collaborative decision-making in the CAP development process. Findings also explore the effectiveness of CAP development processes and tools and whether the completed CAP reflects the values, issues, and solutions identified by stakeholders, mana whenua, and community members. This report synthesises findings from a mid-point and end-point evaluation of the CAP development process. The findings and the recommendations below provide the Integrated Catchment Management Working Group (ICMWG) and the ICM Team with information to improve future CAP development processes.

OUR APPROACH

In May 2024, Emergence Hub interviewed 15 people for the mid-term evaluation, including 12 CICG and three ICM Team members. In November 2024, 16 people were interviewed for the end-point evaluation, including ten CICG, three ICM Team and three ICMWG members. Interviews took place online or via telephone (45 to 60 minutes), were audio-recorded and thematically analysed. A document review was also undertaken and two CICG meetings were observed.

WHAT WE FOUND

Recruitment and selection processes. The channels used by ORC to promote Expression of Interest (EOI) submissions for CICG members effectively reached mana whenua, the community and stakeholders. A well-attended community meeting, which enabled community, mana whenua and ORC ICM Team members to discuss the value of the CAP development process, supported buy-in and encouraged EOI submissions. The selection criteria and process were also effective in ensuring that CICG members represented the knowledge and skills needed for the CAP development process. To strengthen the CICG recruitment and selection process, ORC might consider a comprehensive stakeholder analysis to ensure the selection process avoids bias, and allow adequate time for CICG member selection. The ORC could remunerate CICG members to acknowledge the knowledge they bring and their time commitments.

Decision-making processes in plan development. CICG decision-making was participatory, transparent, and largely based on consensus. Decisions were informed by ORC's existing environmental work and scientific expertise. Mana whenua perspectives could be strengthened by appointing a mana whenua co-chair (alongside the community chair), including mana whenua with Rūnaka policy insights, allowing more time between ICG workshops to get feedback from the Rūnaka on ICG decision-making, and inviting ORC ICM Team and ICG members to visit marae and significant places for mana whenua (and acknowledge mana whenua and tribal territories). The ORC could also consider ways to increase the incorporation of broader community, stakeholder, mana whenua (e.g., whānau), and other perspectives in decision-making, and allow more reflection time to unpack and document tensions in decision-making. Developing a draft CAP template and sharing interim drafts (and spatial planning tools) via an online hub to enable more people to contribute to CAP development.

[redacted]

Plan development processes and tools. The setting for CICG meetings and the ORC ICM Team facilitation created a welcoming and productive space. The Conservation Standards provided a useful structure and process for CICG engagement. The CICG processes and tools can be adapted for future CAPs. The ORC ICM Team reflected on ensuring effective delivery and improvement of processes. ORC could provide more monitoring methodology expertise, and provide facilitator training to ensure efficient time use during CAP development workshops. In addition, the ORC might consider the Conversation Standards' suitability for large geographical areas (with multiple ecosystems) and how processes and tools can better consider the socio-economic, infrastructural and cultural aspirations of people in the community, which might influence CAP buy-in.

The completed Catchment Action Plan. While the direct links between CAP and ORC objectives are less clear, the CAP content aligns well with the ORC strategic direction. CICG members felt strong ownership of the CAP, that it included stakeholders, mana whenua and community priorities, and they accepted it as a 'living document'. However, the CAP does not emphasise mana whenua values, traditional knowledge and interests well enough. While the ORC set up an ICMWG to involve mana whenua in conversations about engagement with mana whenua (and were committed to working collaboratively with mana whenua to get that perspective), the evaluation findings point to opportunities to further engage mana whenua and ensure mana whenua perspectives are more fully acknowledged in CAPs. In addition, further iterations of the CAP could check the scientific validity of information.

RECOMMENDATIONS

We recommend that for future CAP development processes the following activities are undertaken by the ORC:

- Conduct a stakeholder analysis (noting mana whenua as Te Tiriti partners) to ensure consideration of the diversity of people affected by or affecting a catchment in the recruitment and selection process.

- Work with stakeholders to understand how the CAP development process and outputs can be best communicated and how feedback might be captured and incorporated into CAP versions.

- Continue to collaborate with mana whenua to identify and address the enablers and barriers to mana whenua engagement in CAP development processes. Enablers ORC should consider include:
  - Establish a mana whenua ICG co-chair.
  - Explore what mana whenua policy support might be needed in ICG meetings.
  - Provide opportunities for ICG and ORC ICM members to visit marae and environmental sites of significance.
  - Continue exploring capacity and resourcing constraints of mana whenua.

- Consider adapting the Conservation Standards process and tools (where feasible) to ensure the process is 'fit for purpose' in different catchments and acknowledges wider social and cultural needs that might impact on CAP effectiveness.

[redacted]

TABLE OF CONTENTS

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1. INTRODUCTION

This report sets out the key findings from an evaluation of the Catlins Catchment Action Plan (CAP) development pilot project (October 2023 to October 2024). This report synthesises findings from a mid-point evaluation completed in June 2024 and an end-point evaluation completed in November 2024.

Specifically, the report details the effectiveness of key CAP development processes, including:

- The selection and recruitment of the Catlins Integrated Catchment Group (CICG) who were tasked with developing the CAP.
- The decision-making support provided by the Otago Regional Council's (ORC) Integrated Catchment Management (ICM) Team.
- The tools enabling collaboration, engagement, and information sharing.
- Whether the completed CAP accurately reflects the values, issues, and potential solutions identified by stakeholders, mana whenua, and community members involved in the CAP development process.

The mid-point and end-point evaluations do not focus on the CAP implementation or effectiveness. Instead, the evaluation findings enable the ORC to determine the extent to which the Catlins CAP development pilot has been successful. The findings will also provide the Integrated Catchment Management Working Group (ICMWG) and the ORC ICM Team with information to improve future CAP developments.

We now present background information on the Catlins CAP development project including how it was managed and implemented. Then information related to the evaluation is provided including the purpose of the evaluation, the intended use of evaluation findings, and the key evaluation questions addressed in this report.

1.1 BACKGROUND CONTEXT

Integrated Catchment Management (ICM) takes a catchment perspective on natural resource management[2]. The importance of ICM is signalled in the Otago Regional Council's 2021-2031 Long-Term Plan requiring ORC to lead "the development, implementation, and review of integrated Catchment Plans in collaboration with iwi and community" (ORC, 2021, p. 17). The ICMWG had oversight of the CAP development in the Catlins[3]. A CAP is a long-term management plan that builds on community, mana whenua and local government work to protect and manage the catchment and serves as a focus for new actions and projects.

[2] For more information about Integrated Catchment Management see - https://www.orc.govt.nz/managing-our-environment/integrated-catchment-management.
[3] The Catlins in this document refers to the part of the Catlins within the Otago region.

[redacted]

A CAP is not solely focused on freshwater outcomes but the whole catchment, including biodiversity, land, water (fresh and salt), ecosystem services and human well-being values such as mahika kai[4], wāhi tupuna[5] and livelihoods[6].

As part of the Catlins CAP pilot project (October 2023 - October 2024), the ORC ICM Team worked with mana whenua, stakeholders and community to:

- Foster effective collaboration to ensure the now completed CAP is 'owned' and strongly supported by a broad consensus among:
  - Community representing interests including farming, biodiversity, tourism and forestry.
  - Mana whenua.
  - Key stakeholders including the Clutha District Council and the Department of Conservation.
- Develop a focused and adaptive CAP for the Catlins that builds on the best available knowledge.
- Enable accountability of the CAP through monitoring progress and impacts.
- Deliver a CAP development process and CAP that aligns with all relevant ORC plans and policies.

The ORC ICM Team provided advice, administration, and facilitation support to the CICG.

Having described the background of the CAP development process, we now turn to describing the CAP development process as it informed the evaluation focus.

1.2 THE CAP DEVELOPMENT PROCESS

ICM is a holistic, natural resource management philosophy that acknowledges that all the elements of an ecosystem, including the people, are connected. It enables a space for communities, stakeholders, and mana whenua to agree on shared values for an area, make informed decisions and act collectively to manage natural resources. ICM is collaborative, evidence-informed, focused, accountable, and adaptive.

The ICMWG was established to develop the framework for Otago Region's CAPs (including the Catlins CAP) and the collaborative platform for developing the CAPs. The ICMWG has been meeting since February 2023 and its membership includes ORC councillors and staff, mana whenua and community.

The CICG, which was tasked with developing the Catlins CAP, had 15 members who were selected to represent diverse interests. It was formed with advice from the ICMWG using the following steps:

- Develop criteria to specify the desired experience, knowledge, geographic, age, gender, and community of interest representation of CICG members.
- Develop a Terms of Reference that outlines expectations and commitment.

[4] Mahinga kai "refers to Ngāi Tahu interests in traditional food and other natural resources and the places where those resources are obtained" (see https://ngaitahu.iwi.nz/ngai-tahu/creation-stories/the-settlement/settlement-offer/cultural-redress/ownership-and-control/mahinga-kai/).
[5] Sites and areas of significance to Māori.
[6] For more information about the Catlins Integrated Catchment Group who will work with mana whenua and community to develop a Catchment Action Plan, see - https://www.orc.govt.nz/managing-our-environment/integrated-catchment-management/catlins-integrated-catchment-group.

[redacted]

- Hold a community meeting to explain the ICM and CAP processes to the Catlins community and interested stakeholders.
- Disseminate the call for Expressions of Interest (EOI) in joining the CICG.
- Review EOI for CICG membership.
- Recommend appointments to ORC based on an assessment of all applicants against the desired skills, experience, and diversity.

The ORC ICM Team provided advice, administration, and facilitation support to the CICG. The CICG met monthly (between October 2023 and October 2024). Working with the CICG, the ORC ICM Team used the Conservation Standards framework and Miradi software to facilitate the development of the CAP[7]. The Conservation Standards are an internationally developed set of principles and practices that provide a framework for developing focused and effective conservation plans with communities. Miradi is a project management software designed to complement project development and implementation processes that use the Conservation Standards framework.

1.3 EVALUATION PURPOSE AND USE

The ORC ICM Team commissioned Emergence Hub to complete an external evaluation of the Catlins CAP development process to determine (a.) the 'fitness for purpose' of the processes used to develop the Catlins CAP using quality criteria set out below; and (b.) the extent to which the CAP captures available knowledge and strategies representing the concerns, values, and interests of mana whenua, community, and stakeholders.

The evaluation did not consider CAP effectiveness given that there is a significant lag between CAP activities and medium to long-term outcomes, and progress towards the CAP goals and objectives is a part of the CAP implementation process (also out of evaluation scope).

This evaluation will enable the ORC to determine the success of the Catlins CAP development process and provide the ICMWG and the ORC ICM Team with information to adapt planning and engagement processes to improve future CAPs. Four quality criteria were identified to focus the evaluation and associated key evaluation questions (see Table 1).

[7] Information on the Conservation Standards can be found here - https://conservationstandards.org/about/ and information on Miradi can be found here - https://www.miradishare.org/ux/home.

[redacted]

Table 1 Quality Criteria and associated Key Evaluation Questions

Quality Criteria Area (and description)	Key Evaluation Questions
Criterion One: Recruitment and selection process The recruitment and selection processes are transparent, inclusive, and strategically designed to attract and identify candidates who not only possess a diverse range of necessary technical skills, experience, and local knowledge but also reflect the community affected by the CAP. There is clear communication of roles, expected contributions, and selection criteria, as well as mechanisms to ensure diversity and inclusivity in the selection process.	How effectively did the recruitment and selection process identify and onboard CICG members with the diverse skills, experiences, and knowledge necessary for the comprehensive development of the CICG CAP?
Criterion Two - Decision-making The decision-making processes of the ORC ICM Team facilitate clear, efficient, and effective communication and collaboration among CICG members. There are defined roles and responsibilities, and transparent decision-making protocols that encourage consensus-building, and the presence of effective conflict resolution mechanisms that ensure all voices are heard and valued. High quality decision-making is critical to good governance.	How well did the decision-making processes within the CICG foster efficiency, transparency, and inclusiveness in the CAP development process?
Criterion Three - CAP development processes and tools The development processes and tools enable and enhance productive collaboration, engagement, and information sharing among all CICG members. This encompasses the suitability, accessibility, and usability of tools and methodologies to support a collaborative environment, facilitate effective communication, and ensure the CAP development process is agile and responsive to emerging insights and CICG member feedback.	How well did the development processes and the methods used to facilitate meaningful engagement and collaboration among CICG members lead to steady progress in the CAP's development?
Criterion Four - The developed Catlins CAP The completed CAP comprehensively reflects the values, concerns, and aspirations of a wide range of stakeholders, mana whenua, and community members representing a balanced consideration of diverse perspectives and interests. This includes a demonstrable integration of stakeholder and mana whenua input throughout the CAP document, clear responsiveness to identified issues and solutions, and evidence of efforts to reconcile differing viewpoints in a manner that respects and values community and environmental well-being.	To what extent does the completed CAP accurately reflect the broad spectrum of values, issues, and potential solutions identified as important by stakeholders, mana whenua, and community members involved in the CAP development process?

There are assumptions and external influences that were identified by the evaluation team at the start of the evaluation process, which could potentially influence the success (or not) of the CAP development process. Assumptions are those circumstances that must be 'true' to ensure quality criteria are met. External influences are those factors that can have a positive or negative impact on the ability to meet quality criteria (see Table 1). Assumptions and external influences have been updated and are listed in the Appendix.

[redacted]

2. EVALUATION APPROACH

Two evaluation team members attended CICG meetings (29 April and 19 August 2024) to understand the context of the CAP development process, introduce the mid-point and end-point evaluation, and encourage participation in interviews. Several background documents, for example, about the CICG workshops, were also provided by ORC and reviewed by evaluation team members to provide context for the evaluation.

Semi-structured interview guides, a consent form and an information sheet (stating the purpose of the evaluation and how findings would be used) were developed for review by the ORC ICM Team. These fieldwork documents were then finalised by Emergence Hub.

The ORC ICM Team contacted CICG and ICMWG members to see if they were happy to have their contact details provided to the evaluation team. For both the mid-term and end-point evaluations the evaluation team contacted each potential interviewee by email and/or telephone to ask if they were happy to participate in an online or telephone interview (taking between 45 – 60 minutes). In May 2024, we interviewed 15 people for the mid-term evaluation, including 12 CICG people and three ORC ICM Team members. In November 2024, sixteen people were interviewed for the end-point evaluation, including ten CICG, three ICM, and three ICMWG members. Interviews took place online or via telephone (30 to 60 minutes), were audio-recorded and thematically analysed.

Thematic analysis is a standard approach used to analyse qualitative evaluation data. Our approach echoes Braun and Clarke (2006)[8] where the interview transcripts are read multiple times, open codes are assigned to meaningful sections of text, and open codes are grouped to form themes. The themes are then related to the quality criterion.

[8] Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3*(2)*, 77-101.

[redacted]

3. KEY FINDINGS

The key findings examine the effectiveness of key CAP development processes, including (a.) the selection and recruitment of the CICG members; (b.) the decision-making support provided by the ORC's ICM Team; (c.) the tools enabling CICG collaboration, engagement, and information sharing; and (d.) whether the completed CAP accurately reflects the values, issues, and solutions identified by stakeholders, mana whenua, and community members.

3.1 RECRUITMENT AND SELECTION PROCESSES

This section reports findings on how well the CICG recruitment and selection process identified and onboarded CICG members with the diverse skills, experiences, and knowledge necessary for the comprehensive development of the Catlins CAP. Key findings are as follows.

WHAT WORKED WELL

The following aspects of recruitment and selection processes were effective:

- **The channels and methods used to call for an Expression of Interest (EOI) for CICG membership effectively reached mana whenua, community, and stakeholders**. A large group of people attended an ORC facilitated community meeting to learn about the planned CAP development process. Having two local people and two mana whenua ICMWG representatives providing advice on how to approach the community helped with high participation at the community meeting and in the recruitment of CICG members. Rūnaka were consulted about recruitment and selection which ensured the CICG representation of mana whenua from Hokonui Rūnanga and Te Rūnaka o Awarua. Various channels were used to invite mana whenua, community, and stakeholders to attend the ORC community meeting[9].

- **Clear messaging about the importance of the CAP from community, mana whenua, and ORC perspectives helped support interest in the CAP development process.** At the ORC organised community meeting that introduced the CAP development process, several factors supported 'buy-in' to and understanding. Having a local person to introduce the pilot and a mana whenua representative to talk about the 'special nature' of the place in terms of environmental and cultural significance resonated with community members. In addition, the ORC ICM Team members shared a clear message about the integrated nature of the CAP and used examples from overseas about integrated catchment management to inspire interest.

- **Selection criteria and processes ensured that CICG members mostly represented the technical expertise, local knowledge, stakeholder and mana whenua representation required for CAP development.** While some positions for the CICG were allocated (e.g., for the Department of Conservation), the ICMWG group used explicit selection criteria to ensure a mix of participant gender, age, perspective and knowledge (e.g., farming, forestry, or mātauraka Māori). After selection, an ORC ICM Team member telephoned all applicants to let them know whether their application had been successful. The EOIs were a valuable vehicle for providing background

[9] Approaches that were used to promote the community meeting included providing information (a.) in local newspapers; (b.) in emails to schools; (c.) on the ORC website; and (d.) face-to-face discussions at general community meetings by Catlins ICMWG members.

[redacted]

information for ICMWG members and others tasked with shortlisting and selecting CICG candidates. The selection process ensured that a wide range of issues or solutions could be brought to the decision-making 'table'.

SUGGESTED IMPROVEMENTS

Suggested improvements to recruitment and selection processes include to:

- **Complete a full stakeholder analysis**[10] **before the integrated catchment group selection process to identify relevant individuals, groups and organisations (noting mana whenua as Te Tiriti partners)**[11]. Groups that CICG members mentioned that might provide an alternative perspective on the CAP development process included: (a.) Pacific or Philippine peoples and Māori (beyond CICG and ICMWG representation, e.g., whānau); (b.) schools or youth groups (c.) holiday homeowners; and (d.) people in industry and commerce (e.g., from the local supermarket or freezing works)[12]. In addition, other perspectives identified as missing included an ORC operational (to clarify what the ORC can do or not[13]), marine and economic (on the cost and benefits of CAP decisions) perspectives. The CICG may also have benefited from having a better balance between forestry and agricultural perspectives.

- **Adapt the selection process to avoid selection bias and ensure adequate time for CICG member selection.** While the framework criteria for selection appeared useful in narrowing down the candidates for the CICG group, some ICMWG members involved in the final selection would have personally known candidates. To avoid potential bias, future CAP development recruitment processes might consider not including names on Expressions of Interest. Furthermore, more time could be provided in the ICMWG meeting for selection.

- **Offer remuneration to integrated catchment group members.** Remuneration would encourage more people to apply as ICG members and acknowledge the knowledge and insights that people bring and the time commitment of being involved.

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[10] There are several established techniques for undertaking a stakeholder analysis. There is always a trade-off between widening the boundaries of participation and the challenges of harnessing the diversity of perspectives in a given group context. The key is to acknowledge where the boundaries of participation are drawn, who and what is excluded and what ethical issues then arise from groups who are not involved. There are various systems thinking principles and methods that can be used to explore the boundaries of participation and also be scaled up to support larger group decision-making.

[11] While these perspectives may not always directly influence the environmental management of the Catlins, the CAP will potentially involve trade-offs between environmental and economic priorities, and changes may have varied impacts on different social groups. Understanding the different stakeholder perspectives (e.g., business or Pacific peoples) is important in terms of equity of burden or benefit of any changes from the CAP, but may also influence an understanding of what changes are possible.

[12] The relevance of different perspectives in terms of who could influence or be influenced by the CAP would be need to considered in any stakeholder analysis.

[13] While there were no representatives with an ORC operational perspective at the CICG meetings, the ORC ICM Team could incorporate these perspectives through their interactions with other ORC Teams.

[redacted]

SUMMARY

This section has focused on the extent to which the Catlins CAP pilot has met Criterion One, ensuring that the CICG recruitment and selection process was transparent and inclusive, and that CICG members clearly understood what was expected and held the necessary technical skills, experience and local knowledge for CAP development. Evaluation findings suggest that the channels used by ORC to promote EOI submissions for CICG members effectively reached mana whenua, the community and stakeholders. A well-attended community meeting, which enabled community, mana whenua and ORC ICM Team members to discuss the value of the CAP development process, supported buy-in and encouraged EOI submissions. The selection criteria and process were also effective in ensuring that CICG members represented the knowledge and skills needed for the CAP development process. To strengthen the CICG recruitment and selection process, ORC might consider a comprehensive stakeholder analysis to ensure the selection process avoids bias and allow adequate time for CICG member selection. The ORC could remunerate CICG members to acknowledge the knowledge they bring and their time commitments.

3.2 DECISION-MAKING IN PLAN DEVELOPMENT

This section sets out findings related to how well CICG decision-making processes fostered efficiency, transparency, and inclusiveness in the CAP development process and how well CICG members understood ORC ICM team and CICG member roles and responsibilities. Key findings are as follows.

WHAT WORKED WELL

The following aspects of the decision-making processes were effective:

- **CICG members sufficiently understood the ORC ICM Team and CICG member roles and responsibilities and decision-making processes when deciding to participate in the CAP development process.** CICG members were well informed about the ORC ICM Team's role in running workshops and the time required for participation. CICG members were clear that their expertise would be drawn on and that decision-making would be collaborative (following the Conservations Standards protocol). CICG members voted in a Community Chair, which helped to ensure community ownership.

- **The processes used in developing the CAP ensured that decision-making was participatory, transparent, and mainly based on consensus or informed agreement.** ORC ICM Team members were trained in using the Conservation Standards to design and facilitate the CICG workshops. In these workshops, group decisions were captured as workshop outputs and synthesised by the ORC ICM team after each workshop. Outputs were then presented back to CICG members to ensure they resonated with CICG members[14]. The workshop design supported several feedback loops so that participants could see and critique the work of others and agree on workshop outputs. This worked well in most instances, especially when there was enough time allocated for small group work to be critiqued by the wider group within the workshops. The design of activities, and the Community Chair kept the group focused on the tasks set by the ORC ICM Team. While the CICG members had different backgrounds and interests, these members were open to exploring

[14] If CICG members could not attend they were emailed outputs and provided an opportunity to give feedback.

[redacted]

multiple issues and solutions (as opposed to having strong pre-existing views). Subsequently, the CAP development was not held up by significant disagreements. The information exchange and respect for each other's knowledge amongst the CICG helped the group to gain knowledge about the Catlins catchment area and to come to an accommodation in decision-making.

- **Existing environmental work and ORC's science expertise were drawn on well to support the CAP development processes.** A good range of ORC expertise (science and policy team) supported the existing knowledge of CICG members during the CAP development process. When ORC was able to bring in scientists and experts to provide information, the CICG appreciated the technical knowledge.

SUGGESTED IMPROVEMENTS

Suggested improvements to decision-making processes include to:

- **Ensure mana whenua representatives have multiple avenues and support to present a mana whenua perspective in decision-making.** The following approaches could strengthen mana whenua's ability to provide their priorities and perspectives, and knowledge in decision-making during a CAP development process:

  - Organise ORC ICM Team and ICG visits to the marae of mana whenua representatives and significant sites with thriving ecosystems to build relationships and educate the ICM Team and ICG about mana whenua values, practices, and traditions.
  - Appoint a mana whenua co-chair alongside the community chair.
  - Allow sufficient time between Conservation Standard workshops for mana whenua ICG to take decisions made by an ICG back to Rūnaka before decisions are finalised, or consider a parallel process to support and consolidate Rūnaka input[15].
  - Include mana whenua representatives in ICG meetings with insights about Rūnaka policy frameworks (e.g., Te Ao Mārama representative).
  - Consider the potential turnover of mana whenua representatives on ICGs and how turnover might be mitigated.

  These approaches will help ensure that mana whenua representatives do not feel isolated and are more confident to put forth a mana whenua perspective in their role.

- **Explore how to fold the broader community into ICG work and outputs to ensure community buy in for the CAP early in the CAP development process.** While there was a shared understanding amongst the ORC ICM team and the CICG team that the developed CAP is a 'living document', with further opportunities for community feedback, capturing feedback on the CICG's work during CAP development would have allowed for different community groups

[15] ORC could explore (with mana whenua) alternative ways for mana whenua to collect and feedback mana whenua perspectives during and after a CAP development process, including exploring the pros and cons of processes. For example, the establishment of a network of mana whenua representatives (e.g., at the governance and operational levels) to connect at the start of the CAP development process, six months in and at the end was suggested as a parallel process, to ensure mana whenua strategies, knowledge, values and traditions are sufficiently incorporated in a meaningful way into the completed CAP.

[redacted]

and local government (e.g., Clutha District Council) and hapū and whānau to see their voice (and local legislation[16]) in the CAP development process. Testing the ideas of the CICG group with the community, stakeholders, and Rūnaka at different points in the CAP development process might support learning and increase buy-in to the CAP. For example, the CICG group outputs might be tested via existing community events or surveys. Determining the most effective communication channels for sharing information, getting feedback and facilitating engagement needs to happen at the start of the CAP development process to set realistic expectations, avoid confusion or delays, and foster collaborative working arrangements[17]. Expectations also need to be revisited in recognition of uncertainties and unplanned events.

- **Ensure that mana whenua knowledge and tribal boundaries are adequately acknowledged in CAP decision-making.** ORC boundaries, expertise, and worldviews brought to decision-making may be at odds with a Māori worldview and takiwa/tribal boundaries. For example, Ki Uta Ki Tai has not featured predominantly in the CAP development process, yet this is significant to a mana whenua worldview.

- **Enable more time for critical reflection during the CAP development process.** While there were a few noticeable disagreements during discussions about what information the CICG included in the CAP development, the speed at which processes needed to be completed for each set of Conservation Standard activities does not always allow enough time for critical discussion. While the CAP development was collaborative, the timelines associated with activities meant that an approach may have been to 'tread lightly' instead of 'grappling' with tensions (e.g., about the impact of forestry versus farming on the environment). Hence, in updating the CAP, more time could be allocated to unpack and note such tensions.

- **Consider developing the online hub and spatial planning tools at the start of the CAP development process.** Having the online hub and spatial planning framework in place from the beginning may have allowed the ORC ICM Team to better integrate and share information with the community. Whatever approach is taken will need further consideration and depend on the needs and aspirations of a particular catchment community, the ICG and what is feasible for the ORC ICM Team.

- **Develop a draft CAP report template and produce interim drafts throughout the process where feasible**. There was not a clear template for the CAP structure at the start, which made the documentation of the final draft more challenging. Having a draft template for future CAPs and producing interim drafts throughout the process will make the process less challenging and support opportunities for community, stakeholder, and mana whenua input. This would

[16] Although the CAP is a non-regulatory mechanism, legislation is an external influence which may enable or hinder future CAP actions. The CICG benefited from Clutha District Council representative who provided legislative insights.

[17] The ORC ICM Team had a communication plan and held public meetings and Rūnaka hui to get feedback on the draft plan. They also followed CICG advice regarding public advertisements about the CAP development process and when to get feedback on the CAP. However, findings suggest that other avenues for feedback might be warranted at earlier stages in the process. For example, there were challenges for mana whenua CICG members to get ongoing feedback and a low turnout at the community hui where the CAP was presented. While the ORC ICM Team responded to CICG decisions to develop an online hub page this was developed later in the CAP development process. Obtaining feedback from diverse community members (outside the integrated catchment group) on the best communication strategies might increase 'buy in' to the process.

[redacted]

also help to align integrated catchment group and ORC expectations about what the final CAP will include.

- **Clarify and plan for the level of detail that can realistically be included in the CAP given available resources and time constraints.** Broad strategies were developed and included in the Catlins CAP. Still, there was not enough time or resources to detail actions and priorities or to identify data sources, indicators, and reporting mechanisms to track and progress outcomes. Realistic and transparent timeframes need to be set for completing each stage of the CAP development process, which consider factors like holiday periods and seasonal activities in the community.

SUMMARY

This section examines how well the Catlins CAP pilot met Criterion Two, emphasising efficient, transparent, and inclusive decision-making processes within the CICG. The evidence suggests that CICG decision-making was participatory, transparent, and largely based on consensus. Decisions were informed by ORC's existing environmental work and scientific expertise. Mana whenua perspectives could be strengthened by appointing a mana whenua co-chair (alongside the community chair), including mana whenua with Rūnaka policy insights, allowing more time between ICG workshops to get feedback from the Rūnaka on ICG decision-making, and inviting ORC ICM Team and ICG members to visit marae and significant places for mana whenua (and acknowledge mana whenua and tribal territories). The ORC could also consider ways to increase the incorporation of broader community, stakeholder, mana whenua (e.g., whānau), and other perspectives in decision-making, and allow more reflection time to unpack and document tensions in decision-making. Developing a draft CAP template and sharing interim drafts (and spatial planning tools) via an online hub earlier might enable more people to contribute to the CAP development process.

[redacted]

3.3 PLAN DEVELOPMENT PROCESSES AND TOOLS

This section describes the usefulness of development processes and the methods used to facilitate meaningful CICG engagement and collaboration. Key findings are as follows.

WHAT WORKED WELL

The following aspects of CAP development processes and tools were effective:

- **The CAP development working environment s and ORC ICM Team responsiveness was conducive to engagement and collaboration.** Holding meetings at Owaka Community Centre (and at certain times of the day) was agreed between the ORC ICM Team and CICG members. When one workshop had to be moved to the local rugby club this setting was also found suitable by attendees. If there was an issue with technology in CICG meetings, an ORC team member followed up to ensure that anyone affected by the loss of technology had the opportunity to hear what went on in the meeting and to provide feedback back to the group. While the venue was cold at times, participants enjoyed the food provided and the setting was relaxing for CICG members. The communication skills of ORC ICM Team members in taking the integrated catchment group through the CAP development process were appreciated. CICG members valued:

    - The positive attitude of the ORC ICM Team members throughout the process.
    - The clear outline of where participants were up to in the CAP development process and the aim of the workshop for the day.
    - The clear instructions CICG members were provided about the processes being used to generate workshop outputs.
    - The helpful way that the ORC ICM Team listened to and picked up on CICG members' ideas with minimal influence (e.g., paraphrasing of those ideas).
    - The presence of an ORC ICM Team member at each table to provide guidance and support where needed during prescribed exercises.
    - The work completed by the ORC ICM Team member between workshops to present outputs (at the start of the next workshop) in an aesthetically pleasing format and with summary information representative of the process and output that led to that point.

- **The Conservation Standards Framework provided a useful structure and process for CICG engagement.** The range of tools employed by the ORC ICM Team helped support the CAP's development. CICG members appreciated:

    - The small group exercises and intent to ensure a mix of people each time who could provide different perspectives and expertise.
    - The opportunity to critique the work of each small group when they presented their outputs after group activities finished.
    - The opportunity to read the whole workshop outputs (in summary documents provided by the ORC ICM Team) between workshops to ensure the group could see if their views had been captured.
    - The resources provided by the ORC ICM Team (e.g., large sheets used to capture group thinking).

[redacted]

- Basing the group exercises on specific steps and how outputs were captured (e.g., a risk identification exercise looking at the costs and timeframes around pressures impacting the environment).

- **The ICM Team regularly reflected on what was working well (or not) with an eye to ongoing improvement in the delivery of the CAP development process.** The ICM Team undertook activities to improve the CAP development process to best meet the needs of the CICG. This included (a.) reviewing and documenting how each CAP development workshop went as a team; (b.) drawing and sharing inspiration from other communities working with the Conservation Standards internationally; and (c.) working with other catchment action planners in the Otago region to explore useful processes and tools to use in CAP development processes.

SUGGESTED IMPROVEMENTS

Suggested improvements to processes and tools include to:

- **Bring experts in to support the identification of monitoring methodologies.** While the CICG group brought a wealth of knowledge, asking CICG members to nominate monitoring methodologies to use in a part of the ecosystem (e.g., forest health) was not seen by CICG members to be useful. Instead, science-led decisions around monitoring were perceived by some CICG members to be the best approach. For this reason, some CICG members had low confidence in the quality of selected indicators and monitoring tools during the CAP development process. There was also a question about whether iwi would recognise and acknowledge the indicators and approach put forward. The limitations of 'citizen science' and the need for trained professionals to conduct effective monitoring might be considered before a CAP development process is started. Using local (as opposed to overseas) examples when facilitating a CAP development process might resonate better with integrated catchment group members[18].

- **Provide training for ORC ICM Team members in facilitating the CAP development process.** An ICM Team member suggested that facilitator training might have been useful alongside training in the Conservation Standards process. Some CICG members noted that a more structured approach was sometimes needed to keep the group on task and make effective use of the time available.

- **Explore whether applying the Conservation Standards Framework in a large geographical area with multiple ecosystems might be challenging.** The Conversation Standards Framework might work better if the focus of the CAP was in a smaller geographical area. There is also a need to explore whether processes and tools need to be added to better consider the socio-economic, infrastructure and cultural aspirations of people in a catchment[19].

[18] New Zealand examples could be developed as part of the roll out of the CAP development process in Otago.
[19] Environmental concerns and priorities exist in a broader context (e.g., people's livelihoods or connection to a place) The willingness of people to engage in a CAP development process and to buy in to the CAP itself will depend on a wider set of issues that are important to the community (e.g., if there were poor relationships between mana whenua and a local council historically this might impact on how engagement happens).

[redacted]

SUMMARY

This section has examined the evidence for Criterion Three and whether the CAP development process facilitated meaningful engagement, collaboration and information sharing among CICG members. Evaluation findings suggest that the setting for CICG meetings and the ORC ICM Team facilitation created a welcoming and productive space. The Conservation Standards provided a useful structure and process for CICG engagement. The CICG processes and tools can be adapted for future CAPs. The ORC ICM Team reflected on how to ensure effective delivery and improvement of processes. ORC could provide more monitoring methodology expertise, and provide facilitator training, where necessary, to ensure ICG members are more efficient with time during CAP development workshops. In addition, the ORC might consider the Conversation Standards' suitability for large geographical areas (with multiple ecosystems) and how processes and tools can better consider socio-economic, infrastructural and cultural aspirations of people in the community, which might influence support for the CAP.

3.4 THE COMPLETED CATCHMENT ACTION PLAN

This section describes the extent to which the first version of the completed CAP accurately reflected the broad spectrum of values, issues, and potential solutions identified as important by stakeholders, mana whenua, and community members involved in the CAP development process[20]. Key findings are as follows.

WHAT WORKED WELL

The following aspects of the developed CAP development worked well:

- **The CICG members feel strong ownership of the CAP**. The majority of CICG members feel that the CAP represents what the group has discussed and decided on as important over the year, and want to continue meeting to support the implementation of the CAP. What that would look like was unclear at the time of interviews, but the appetite was there to ensure the plan would not 'fizzle'. CICG members appreciated the experience of developing the CAP alongside the ORC ICM Team and developing trust and relationships in the process.

- **The CAP's content and approach align well with ORC's strategic direction**. The CAP's environmental focus, community engagement, and partnership approach align well with ORC's strategic direction and goals. The ORC's long-term plan does include a specific service agreement target to develop integrated catchment management plans, which the CAP directly contributes to. However, the ORC's strategic direction and goals are high-level, making the direct linkage between the CAP and ORC's objectives harder to identify. Furthermore, the linkages between ORC strategic direction and the specific actions in the long-term plan are not always clear or well-documented.

[20] When information from interviewees was collected for this report, the ORC ICM Team had met with Awarua whānau in Waikawa (17 October) and Hokonui Rūnanga in Gore (25 October). Comments from these Rūnaka were due in early December and have been incorporated by the ORC ICM Team into the draft CAP as a 'living document.'

[redacted]

- **A range of local priorities that are important to the community, stakeholders, and mana whenua have been acknowledged in the CAP**. Broad strategies to address a range of local priorities were developed and included in the CAP.

SUGGESTED IMPROVEMENTS

Suggested improvements to improve the CAP include to:

- **Ensure more buy-in and oversight from ORC governance to strengthen the alignment between the CAP and ORC objectives**. To fully integrate the CAP into ORC planning and decision-making, CAP and ORC objectives will need to be explicitly linked.

- **Clarify what implementing a catchment plan will look like and resourcing at an earlier stage in the CAP development process (where possible).** At the time interviews were conducted for the end-point evaluation, the ongoing role of the ORC or other groups in funding or coordinating the implementation of the CAP was unknown. A press release from ORC on 21 November 2024 stated that the ORC had approved the recommended framework for actions (as set out in the CAP) and had allocated $100,000 in funding to help "kick it off"[21]. Throughout the CAP development process, the CICG were keen to understand what would happen after the CAP development process.

- **Strengthen the emphasis placed on mana whenua values, traditional knowledge and interests**. Some key aspects of a mana whenua perspective that were not emphasised well enough in the CAP include: (a.) foundational mana whenua values or concepts, cultural practices, and relationships with the land and water, including the need to enhance and restore the natural environment to support mahika kai and other cultural practices (rather than a strong focus on management of pests and weeds); (b.) recognition and protection of specific sites of cultural significance (e.g., burial grounds, and waka landing areas); and (c.) consideration of the holistic, interconnected nature of the land, water, and coastal environments, and how impacts in one area can affect resources and practices in others. To adequately incorporate Māori values, traditional knowledge and interests, the ORC could establish a forum for the ORC and Rūnaka to work together to prepare the CAP with CICG members and ensure it better reflects mana whenua perspectives.[22]

[21] https://www.orc.govt.nz/your-council/latest-news/news/2024/november/catlins-ecosystems-plan-ready-for-action/.

[22] This would need to happen at the planning and partnership level meetings where direction setting and decision-making happen. While the ICMWG was set up to enable these conversations (with Rūnaka representatives) and support planning around the recruitment of CICG members and mana whenua representatives, the practical implications of how that might work within the Conservation Standards Framework in terms of getting ongoing feedback from the mana whenua (and associated capacity and resourcing issues) were potentially underexplored. Furthermore, clarifying mana whenua values and practices (the cultural narrative that needed to be integrated in to the CAP development process) and how to ensure that perspective is heard and acknowledged needs to be well established before CAP development starts. While these are suggested improvements to the way that the ORC might engage with mana whenua in the future, it is important to note that the ORC ICM Team showed a genuine commitment to (a.) acknowledge mana whenua as Tiriti o Waitangi partners in the Catlin's CAP pilot; and (b.) accommodate the needs of mana whenua representatives (e.g., capacity needs and ability to participate in the CAP development process).

[redacted]

- **Involve mana whenua early in conversations about how best to engage with mana whenua in the CAP development process.** Early conversations need to clarify the roles and responsibilities of ICG representatives and what working as a Te Tiriti partner means in the CAP development and implementation. ORC could establish a stronger formal process for engaging with mana whenua before the CAP development process to determine the appropriate level and type of involvement from mana whenua, and support needed to increase mana whenua engagement in the process[23]. In addition, there is a need to ensure mana whenua ICG members have a clear mandate from the Rūnaka communicated to everyone involved in the CAP development process, and the capacity to be involved in a project from start to finish. Representatives also need to renumerated for their time and costs as soon as feasible[24]. The dual role of mana whenua in governance (as a Te Tiriti partner) and operations (as a CICG participant) and conversations that are had at those levels also need to be clarified[25].

- **Ensure time for combining community, mana whenua, and stakeholder knowledge and expertise and science**. There are opportunities to increase the scientific robustness of the CAP as it is a 'living document' that will be continuously adapted and evaluated. For example, the CICG had identified key attributes and indicators of wetland health but was not able to verify these with scientists within the project timeline. Having scientific data and expert input can provide a more comprehensive understanding of the ecosystem and the implications of CAP decisions.

SUMMARY

This section examined the final criterion, considering whether the completed CAP reflects in a balanced way the values, concerns and aspirations of a wide range of stakeholders, mana whenua and community members. While the direct links between CAP and ORC objectives are less clear, the CAP content aligns well with the ORC's strategic direction. CICG members felt strong ownership of the CAP, that it included stakeholders, mana whenua and community priorities, and they accepted it was a 'living document'. However, the CAP does not emphasise mana whenua values, traditional knowledge and interests well enough. While the ORC set up an ICMWG to involve mana whenua in conversations about engagement with mana whenua (and were committed to working collaboratively with mana whenua to get that perspective), the evaluation findings point to opportunities to further engage mana whenua and ensure mana whenua perspectives are more fully acknowledged in CAPs. In addition, further iterations of the CAP could check the scientific validity of information.

[23] This includes providing resources and capacity building support to enable mana whenua to meaningfully participate in the CAP development process and its implementation, such as funding for administration, travel, and technical expertise.
[24] As in the case of the Catlins CAP, conversations about renumeration came up later on the CAP development process (when the mandate for mana whenua representation was established). The ICM ORC then worked to organise renumeration for the representative via the Rūnaka.
[25] For example, conversations best suited at a 'mana to mana' level, such as the nature of the Te Tiriti partnership would not happen with the mana whenua representative on a ICG level (it may leave them exposed to potential criticism by other community participants).

[redacted]

4. RECOMMENDATIONS

We recommend that for future CAP development processes the following activities are undertaken by the ORC:

- Conduct a stakeholder analysis (noting mana whenua as Te Tiriti partners) to ensure consideration of the diversity of people affected by or affecting a catchment in the recruitment and selection process.

- Work with stakeholders to understand how the CAP development process and outputs can be best communicated and how feedback might be captured and incorporated into CAP versions.

- Continue to collaborate with mana whenua to identify and address the enablers and barriers to mana whenua engagement in CAP development processes. Enablers ORC should consider include:
  - Establish a mana whenua ICG co-chair.
  - Explore what mana whenua policy support might be needed in ICG meetings.
  - Provide opportunities for ICG and ORC ICM members to visit marae and environmental sites of significance.
  - Continue exploring capacity and resourcing constraints of mana whenua.

- Consider adapting the Conservation Standards process and tools (where feasible) to ensure the process is 'fit for purpose' in different catchments and acknowledges wider social and cultural needs that might impact on CAP effectiveness.

[redacted]

APPENDIX

ASSUMPTIONS

Assumptions related to the quality criteria being realised include:

Selection of CICG members

- There are effective outreach and communication strategies in place to ensure that all potential stakeholders are aware of and can participate in the selection process.
- Inclusivity and accessibility in the selection process led to better decision-making and outcomes because of the diverse inputs.
- The community values inclusivity and is willing to engage in a process that might be more time-consuming and complex to ensure broad representation.

Governance and decision-making

- There are established mechanisms (e.g., workshops, public forums, online platforms) that facilitate effective communication and participation.
- Stakeholders are willing to engage in constructive dialogue and compromise when necessary.
- Effective governance and decision-making processes are recognised as foundational for the success of the CAP.

CAP development processes (inclusive and meaningful engagement)

- Engaging stakeholders meaningfully leads to more effective and sustainable outcomes.
- Participants are motivated by the opportunity to contribute to environmental and community well-being.
- The process is designed to be accessible and accommodating to the needs of all participants, including consideration of language barriers, physical accessibility, and timing of meetings.

Completed CAP

- Integrating diverse knowledge systems leads to more comprehensive and effective environmental management solutions.
- There is respect and openness among stakeholders to learn from and utilise different types of knowledge.
- Mechanisms are in place to accurately translate and incorporate traditional and local knowledge into the planning process alongside scientific data.

[redacted]

EXTERNAL INFLUENCES

The ability to meet quality criteria associated with the development of a CAP might be affected by the following external influences:

Positive influences

- Legislation and policies that encourage community involvement in environmental management and provide a supportive framework for CAP development.
- Adequate funding and resources allocated for CAP development can enable thorough engagement processes and ensure the plan is comprehensive and well-informed.
- Active local networks and community organisations can facilitate broader participation and ensure that local knowledge and Mātauranga Māori is effectively incorporated into the CAP.

Negative Influences

- Shifts in political priorities or leadership and treaty relationship agreements with Councils can affect the continuity and support for CAP initiatives, , potentially undermining the process and its outcomes.
- Economic downturns or budget cuts can limit the resources available for CAP development, reducing the scope of engagement activities and the quality of the plan.
- Pre-existing social or cultural tensions within a community can hinder participation and collaboration, particularly if segments of the community feel marginalised or distrustful of the process.
- Natural disasters or the broader impacts of climate change can shift focus and resources away from long-term planning initiatives like CAPs to more immediate disaster response and recovery efforts.
- If the public is not adequately informed about the importance of catchment management or does not perceive it as a priority, engagement in the CAP development process may be low.

9.2. Wilding Conifer Business Case

Prepared for:	Environmental Implementation Committee
Report No.	GOV2518
Activity:	Governance Report
Author:	Libby Caldwell, Manager Environmental Implementation
Endorsed by:	Joanna Gilroy, General Manager Environmental Delivery
Date:	5 March 2025

PURPOSE

[1] To present the 'Additional Regional Investment for Wilding Conifer Management in Otago Simplified Business Case' (business case) prepared by Boffa Miskell and to outline an opportunity to explore other funding options.

EXECUTIVE SUMMARY

[2] Wilding conifers pose a serious pest issue which, if left uncontrolled, will cause a range of issues. Wilding conifers are defined as a pest in the Regional Pest Management Plan and a priority pest nationally. In May 2023, the Otago Regional Wilding Conifer Strategy 2023 – 2029 (Otago Strategy) was endorsed by the Environmental Implementation Committee. As a result of the strategy, a business case was commissioned. The business case provides information to support increased investment options into ongoing wilding conifer control in Otago. The business case assesses a range of investment options in terms of feasibility, cost, benefits and risks.

[3] The preferred option recommended in the business case is the Intermediate 'extend the investment' option which would control 99.9% of the known infestation by expanding the control of wilding conifers to include another five priority management units in Otago. The cost of this (including in-kind contributions) is estimated at approximately $66 million to 2023/2034 over 10 years. This cost is $44 million more than is currently committed over the same period (if funding from central government is not altered).

[4] Environment Canterbury (ECan) and Environment Southland are currently exploring funding options with MPI to understand if there are ways that more funding could be provided to support the wilding conifer programme. ECan have asked if staff and Councillors want to participate in this process. Any opportunities that may arise would be presented back to Council for further consideration. Staff work with both Councils on wilding conifer management as part of their BAU work.

RECOMMENDATION

That the Environmental Implementation Committee:

a) ***Notes*** *this report.*

b) ***Notes*** *the significant value that further investment in Wilding Conifer control in Otago would provide as outlined in the Business Case.*

c) ***Recommends*** *that Council* ***Endorses Option 1 –*** *Council continue to engage with other Regional Councils and Government Agencies to explore funding opportunities for Wilding Conifers which would support and enhance delivery of the existing programme in Otago.*

BACKGROUND

[5] Wilding conifers pose a serious pest issue which, if left uncontrolled, will: spread and out-compete native plants, reduce native animal habitat, reduce water yield, limit productive land use, increase wildfire risk and permanently alter landscapes. The negative impacts of wilding conifer infestation and spread if left uncontrolled have been well documented by MPI and the NWCCP.

[6] Otago's iconic landscapes are vulnerable to the invasion of wilding conifers. In 2016, a MPI-funded report estimated that 8.4% - or 295,830 ha – of Otago was affected by wilding conifer infestation. In 2016, around 70% of Otago was mapped as being 'very highly vulnerable' to wilding conifer infestation. Particularly at risk are Otago's high country and tussock grasslands.

[7] In May 2023, the Otago Regional Wilding Conifer Strategy 2023 – 2029 (Otago Strategy) was endorsed by the Environmental Implementation Committee. This strategy was designed to occupy the space between the New Zealand Wilding Conifer Management Strategy 2015-2030 and those of the wilding conifer control groups operating in Otago. It identifies issues and gaps related to wilding conifer control, how these can be addressed, and what the intended outcomes are for each activity (Attachment 1).

[8] One of the actions within the Otago Strategy was to prepare a business case to inform preparation of the next Long-Term Plan (LTP). Feedback from Councillors in initial discussions about the LTP was to not include Wilding Conifer control work, so the business case was not prioritised. It has now been completed (Attachment 3).

[9] The business case follows on from the 'Benefits and Costs of Additional Investment in Wilding Conifer Control in the Otago Region' (cost benefit analysis) (Attachment 2) which was presented to the Environmental Implementation Committee on the 8th of November 2023. This business case provides an excellent basis for connecting with central government around the benefits of funding further wilding conifer removal within Otago and details what is required to achieve the outcomes sought.

[10] Wilding conifers are a priority pest in the Otago Biosecurity Operational Plan for 2024/25. This means they are of concern to the community and have heightened adverse effects on environmental, economic, and/or social grounds. There are rules in the RPMP which are in place to protect public investment where wilding conifer control work has been funded since January 2016. These rules are applicable once a property has been 'handed back' to a property owner/occupier and they are then required to maintain any wilding conifers that are located on the property after all maintenance supported by public money has concluded. The rules state that prior to cone bearing they must eliminate all wilding conifers in these instances.

[11] MPI has previously advised that the total annual budget nationally for the NWCCP will become $10 million, inclusive with an indicative operational budget of approximately $8 million from 2023/24 onwards. This is a significant reduction in funding compared to the three years prior where $22.5 million was provided for the 2022/23 financial year.

Consequently, MPI will not be able to maintain the current control programme required to meet all outcomes in the New Zealand Wilding Conifer Management National Strategy (National Strategy).

[12] MPI have indicated the total annual budget of $10 million for the NWCCP will continue until at least 30 June 2026, with approximately $8 million available for operations annually. The level of national funding from 1 July 2026 onwards is currently unclear. The baseline operational funding proposed by MPI is insufficient to maintain the gains and progressively contain wilding conifers across New Zealand.

[13] Without continued investment and intervention, achieving long term sustainable wilding conifer outcomes for the region is not attainable and maintaining the current gains on their own will not achieve long term sustainable management of wilding conifers. Ongoing progressive control and containment is also required to prevent the spread from seed sources that are still present in the region.

DISCUSSION

[14] The business case provides information to support increased investment into ongoing wilding conifer control in Otago. The business case assesses a range of investment options in terms of feasibility, cost, benefits and risks.

[15] The business case identifies that the preferred option for the effective control of wildings is the Intermediate 'extend the investment' option which would control 99.9% of the known infestation by expanding the control of wilding conifers to include another five priority management units in Otago. The cost of this (including in-kind contributions) is estimated at approximately $66 million to 2023/2034 over 10 years. This cost is $44 million more than is currently committed over the same period (if funding from central government is not altered).

[16] The cost benefit analysis predicts that if the 'extend the investment' option was implemented there would be the avoidance of losses of $2.8 billion over 50 years to the Otago community. This includes potential losses from primary production, water yields, biodiversity, cultural values, fire spread and associated damage. The losses predicted far outweigh the cost to implement the 'extend the investment' option provided in the business case. It is recognised that the provision of extra funding for delivery of this programme is significant for the community in terms of the potential rates burden by leveraging funding and through the ongoing obligations that a landowner/occupier is required to do once they receive public funding. It is important to note that if the funding is received sooner the cost in the longer term is lower.

[17] ECan are currently exploring funding options with MPI to understand if there are ways that more funding could be provided to support the Canterbury wilding conifer programme. Staff routinely work with ECan and other Councils, including Environment Southland on wilding conifer management. This includes initial discussions about also approaching MPI about funding options.

[18] Staff consider that it would be beneficial to continue to be involved in the conversations that ECan are having with MPI at an operational level and to further these at the

Governance level. Being involved in these conversations would enable staff and Governance to understand if there may be options in Otago to access further funding to support delivery of our programme. Any opportunities that may arise would be presented back to Council for further consideration.

OPTIONS

[19] Option 1 - Council supports ongoing discussions on funding opportunities with other regional councils and if deemed feasible, with MPI to investigate what options are available to bolster funding to enhance the delivery of the Wilding Conifer programme in Otago.

[20] Option 2 - Council does not support ongoing discussions on funding opportunities with other regional councils and MPI in regards to funding opportunities for wilding conifer programme delivery in Otago.

CONSIDERATIONS

Strategic Framework and Policy Considerations

[21] The business case and the discussions about funding will support delivery of the RPMP (Otago Regional Pest Management Plan 2019-2029) objective which is to progressively contain and reduce the geographic extent of wilding conifers within the Otago region. The business case and associated exploration It also aligns with the environment pillar of the strategic directions through ORC playing a lead role in wilding conifer management.

Financial Considerations

[22] Operational costs for wilding conifer control service delivery applies in Otago. As there is a reduced funding pool, and therefore a reduction in funding available for the Otago region as part of the NWCCP, the programme will not be delivered to the extent originally envisaged unless other funding sources are found to continue the full delivery of this programme.

[23] Landowners have contributed financially towards the completion of work on their properties, with an expectation that NWCCP funding will be available to complete the maintenance required and deliver lasting protection from the impact of wilding conifers on indigenous biodiversity, productive land use, landscape, and freshwater values. The reduction in NWCCP funding risks losing most of the gains made since the programme began and the financial contribution that landowners have made.

Significance and Engagement

[24] Not applicable.

Legislative and Risk Considerations

[25] Further investigations will be required to determine any risk or legislative issues if other funding opportunities are available. These would be detailed in future papers if opportunities arise.

Climate Change Considerations

[26] Climate change is widely regarded as one of the greatest challenges facing ecological systems in the coming century. Climate change therefore poses risks to the impact of wilding conifers in Otago through factors such as the establishment of new species, changes in the status of current populations and shifts in introduction pathways.

Communications Considerations

[27] Nil

NEXT STEPS

[28] If endorsed, further communications with other regional councils will occur to see what funding opportunities are available. Following this contact may be made with MPI if there is a potentially feasible opportunity to explore.

[29] Following the committee meeting, the business case will be shared with the wilding conifer control groups in Otago.

ATTACHMENTS

1. otago-wilding-conifer-strategy- [**9.2.1** - 7 pages]
2. Benefits and Costs of Additional Investment in Wilding Conifer Control_-_ Otago_ [**9.2.2** - 55 pages]
3. Otago Regional Council Wilding Conifer Business Case 2024 [**9.2.3** - 39 pages]

Otago Regional Wilding Conifer Strategy 2023 - 2029

Background

Otago's iconic landscapes are vulnerable to the invasion of wilding conifers. In 2016, a Ministry for Primary Industries (MPI)-funded report estimated that 8.4% - or 295,830 ha – of Otago was affected by wilding conifer infestation. In 2016, around 70% of Otago was mapped[1] as being 'very highly vulnerable' to wilding conifer infestation. Particularly at risk are Otago's high country and tussock grasslands.

Adverse effects resulting from wilding conifer infestation include:

- Reducing water yield, particularly in low rainfall catchments.
- Out-competing and subsequently replacing native vegetation.
- Increasing the risk of wildfire.
- Reducing the economic productivity of land; and
- Impacting on social and cultural values, e.g., landscape, recreational.

A cost benefit analysis commissioned by MPI in 2018[2] quantified that doing nothing, or doing little, will generate a large negative economic impact for the country: a loss of $4.6 billion. Without national intervention wilding pines will then spread to 7.5 million ha of vulnerable land. This could take as little as 15 to 30 years. It can be as little as $5–$10 per hectare to treat sparse infestations, however, control costs escalate over time and treating dense infestations will typically cost $2,000 per hectare to aerial boom spray (2018 figures). Consequently, it will never be cheaper to address the problem than it is now.

The growing problem has been recognised for some years, and as a result, the Whakatipu Wilding Conifer Control Group, Central Otago Wilding Control Group, and the Upper Clutha Wilding Conifer Control Group established themselves to control wilding conifers. A National Wilding Conifer Control Programme has also been developed and funded by government agencies, landowners, and local communities to address infestations.

Control efforts to date have been very successful 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.

Objective of the Strategy

The Otago Regional Pest Management Plan 2019-2029 (RPMP) contains an objective and rules relating to the management of wilding conifers and stipulates that measures drawn from the suite of activities listed under requirement to act, collaboration, council inspection, service delivery, advocacy and education may be used by ORC to achieve the plan's objective.

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[1] Wildlands Contract Report No. 3754a prepared for MPI. Methods for the Prioritisation of Wilding Conifer sites across New Zealand. February 2016.

[2] Wyatt, S., 2018, Benefits and Costs of the Wilding Pine Management Programme Phase 2, Sapere.

Otago Regional Council

In 2022, the ORC began to develop a Regional Wilding Conifer Strategy to work towards achieving the objective in the RPMP (see below).

> *Objective 6.3.4 Over the duration of the Plan (2019-2029), progressively contain and reduce the geographic extent of wilding conifers within the Otago Region to minimise adverse effects on economic well-being and the environment.*

This strategy has been designed to occupy the space between the New Zealand Wilding Conifer Management Strategy 2015-2030 and those of the operating groups. It identifies issues and gaps related to wilding conifer control, how these can be addressed, and what the intended outcomes are for each activity.

The logic underpinning the Strategy is that if all the outcomes in the regional strategy were achieved within the timeframe (i.e., by 2029) then this would be notable progress in the effective management of wilding conifers and would help with ensuring that the vision and objectives of the New Zealand Wilding Conifer Management Strategy 2015-2030 and those of the operating groups are also realised.

Matters not included in the Regional Strategy

This is a wilding conifer strategy, not a planted conifer strategy. It is not intended to address the deliberate afforestation of land with permanent or production conifer forests, rather is it intended to address wilding conifers that may result from these forests or other seed sources.

There are also several other matters that have not been included in the regional strategy:

- ***National Environmental Standards for Plantation Forestry 2017 (NES-PF):*** The NES provides controls to manage the spread of wilding conifers from plantation forests that were established since the NES-PF was introduced (regulation 11) and provides controls for when harvested forest land is replanted with a different species (regulation 79). There are no controls, however, on wilding conifers emanating from plantation forests that were established before 2017, and there is no requirement to assess the wilding risk when replanting with the same species. Furthermore, the controls in the NES-PF can only require the forest owner to manage wildings on their own land (as it cannot confer a right to access another's property) and focusses this control work on wetlands and significant natural areas (SNAs).

  In short, the wilding risk controls in the NES-PF do not apply to forests established pre-2017 unless they are harvested and replanted with a different species; do not require the forest owner to address wilding conifers on their land if it is not in a wetland or SNA; and do not require the forest owner to address wilding conifers that establish on someone else's land.

  The NES-PF is currently under review by MPI. The regional strategy does not, therefore, recommend that ORC seeks to fill these gaps at this stage. Instead, it recommends that an assessment is undertaken to determine whether, if these controls (along with RPMP rules, Territorial Authority rules

and resource conditions) were implemented effectively, there would still be a need for any further controls.

- ***Permanent carbon forests:*** The NES-PF does not currently apply to permanent carbon forests but the current review of the NES-PF includes consideration of how new permanent carbon forests will be managed in the future. Other than recommending better alignment between the RPMP, District Plans and NES-PF rules for ease of implementation, the regional strategy does not address this matter any further.

- ***How control work is undertaken:*** Given that this is a high-level strategy, there is little detail about how the actual control work is undertaken or how the canopy cover is transitioned. These matters are inherent within the regional strategy and this level of detail is not required at this stage. The regional strategy is instead focussed on the necessary foundations to ensure that effective control work can continue and expand, such as ensuring there is adequate resourcing, greater participation, greater urgency, and less resistance.

- ***Auditing NES-PF consent applications and wilding risk calculations:*** Operational matters have not been included as these are inherent within the effective operation of ORC and/or contractors. These include:

    - Suitably qualified and experienced staff and contractors to assess wilding risk calculations and consent applications.
    - Consistent compliance auditing and monitoring; and
    - Ongoing professional learning and development for relevant staff.

	Situation	Inputs	Activities & Participants	Outputs	Outcomes / Impacts
Improving Understanding and Prioritising Work	***1. Monitoring of wilding spread is inconsistent and incomplete.*** Current monitoring/ surveillance is ad hoc. Inconsistent data collection makes it difficult to compare data sets over time. MPI's proposed remote surveillance programme may still be several years away.	ORC time and resources. Input is required from Ministry of Primary Industries (MPI), Land Information New Zealand (LINZ), Department of Conservation (DOC), Whakatipu Wilding Conifer Control Group (WCG), Central Otago Wilding Conifer Control Group (CWG), Upper Clutha Wilding Control Group (UCWCG), Territorial Authorities (TA) and private landowners regarding monitoring currently undertaken and in development.	ORC leads a body of work alongside others to review monitoring currently undertaken and in development, and identify opportunities to consolidate, improve, and add value to this. The focus of this work will be how to complement and/or add value to Wilding Conifers Information System and monitoring currently undertaken by others rather than creating duplication. This will include investigating how to incorporate records of control work and field data for future planning purposes.	Informed by the review, ORC works with others to ensure that a robust and detailed regional surveillance programme is developed and implemented that is accurate, repeatable, and comparable. This must add value to, or at least be, compatible with, WCIS and monitoring undertaken by others.	Reliable monitoring data is used to prioritise control work, report on the impact of control work undertaken, and provide a better understanding of subregional nuances.
	2. The location of seed sources and the spread of wilding conifers across Otago is not fully understood Whilst there is data regarding the location of seed sources and the spread of wilding conifers across Wakatipu and Central Otago, the problem isn't yet fully understood in other parts of the region. This includes the location of shelter belts that may pose a wilding spread risk. If the problem is underestimated and risks are not fully understood, opportunities to make early gains are lost.	ORC staff time and resources. Data from the various existing monitoring programmes is required.	ORC works with others to create and/or update spatial records for wilding conifer spread across Otago. ORC undertakes mapping to fill in spatial knowledge gaps identified across the region to augment/update WCIS. ORC works with others to ensure information about seed sources (including shelterbelts) and their relative risk is available in a centralised database (e.g., WCIS).	Spatial datasets of wilding conifer infestation areas and seed sources are produced. These include an indication of relative current and future risk based on the 4S's as well as environmental, social, cultural, and economic factors.	Control work across the region is prioritised based on the 4 S's (species, status of control, spread factor, seed sources) as well as environmental, social, cultural, and economic factors for longer-term gains. There is an increase in the amount of work being undertaken to control the spread of conifers at an early stage (pre-coning). Current and future risks are better understood and recorded in WCIS or another central database (this outcome also links to that in SS4).

	Situation	Inputs	Activities & Participants	Outputs	Outcomes / Impacts
Awareness and Education	***3. Public awareness and acceptance could be better*** The level of understanding regarding the urgency of the problem and social license for subsequent control work is greater in Wakatipu and Central Otago than other parts of Otago. A lack of understanding of the issue and the urgency can lead to resistance, delays, and a reluctance to undertake control work. Seed sources are often located in populated urban areas, and/or as shelter belts, amenity plantings, etc. Addressing these seed sources will require social, cultural, and political matters to be addressed and worked through. There is a tension between controlling wilding conifers and saving/planting trees for carbon sequestration.	ORC staff time and resources. Collaboration with MPI, LINZ, DOC, WCG, CWG, UCWCG, FENZ, TAs, Catchment Groups, and other key stakeholders such as the Wilding Pine Network is required.	ORC works with WCG, CWG, UCWCG, MPI and the Wilding Pine Network (WPN) to co-design and implement a communication and engagement plan for targeted education across the region to inform communities of the risks posed by wilding spread (e.g., fire risk, biodiversity loss, water yield, soil composition, wildfire risk, loss of productive land, changing landscapes, loss of historic and recreational areas etc). ORC receives advice from MPI and others regarding the narrative for why it's necessary to control wildings when others are planting trees for carbon sequestration. ORC includes information about rules, roles and responsibilities in its communications packages.	A communication and engagement plan for targeted education across the region. Including: - key message 'right tree, right place, right reason' rather than 'all conifers are a problem' (which they are not). - tailored for different communities, industry sector groups and specific corporate entities to ensure they are pertinent e.g., 'how does it affect me?' etc. - promotion of success stories - visual tools to show likely/actual changes over time where appropriate (bearing in mind that landscapes forested with conifers are attractive to some people). This incorporates and complements – rather than replaces – existing communications and engagement work undertaken by WCG, CWG, UCWCG, MPI and WPN.	Communities across Otago are well informed and aware about the risk of wilding conifer spread, the urgency of the issue in their area, and the benefits of early intervention. Landowners are aware of their responsibilities regarding wilding conifer control, the need to keep areas clear and manage their land accordingly. Individuals and communities are undertaking a greater amount of wilding control, motivated in part by successes reported elsewhere. New non-production plantings (e.g., plantings in subdivisions, shelterbelts, amenity trees etc.) are non-spreading species. Communities across Otago have a better understanding of the difference between problematic pest trees and trees that are providing commercial benefits, carbon sequestration, biodiversity benefits, and other environmental benefits. Control work on public land continues at a higher rate due to less community resistance.

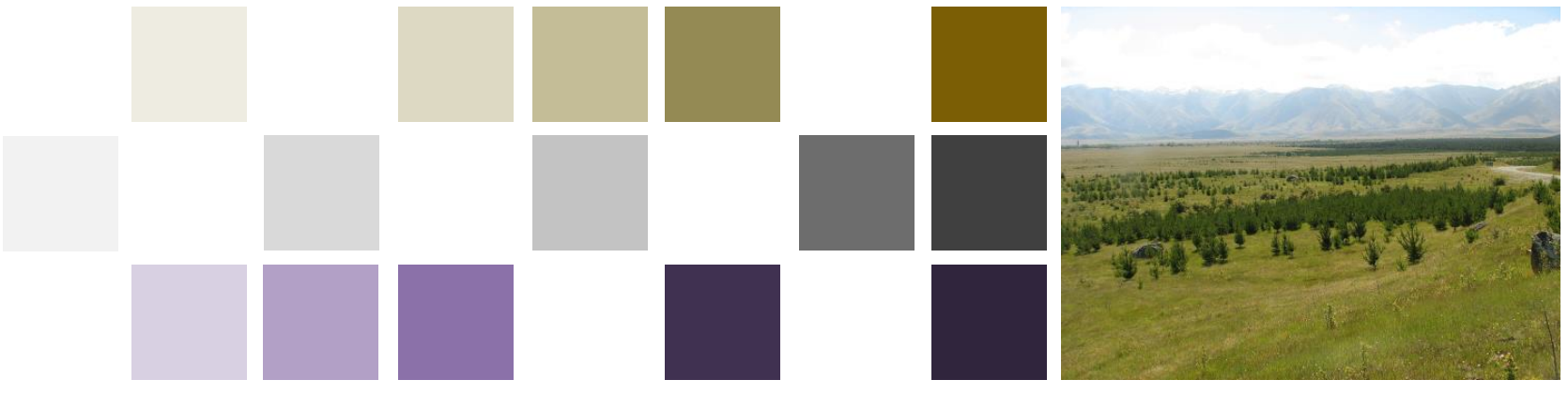
	Situation	Inputs	Activities & Participants	Outputs	Outcomes / Impacts
Funding	***4. There is no regional cost benefit analysis*** The very high benefit to cost ratio of early control is often not taken advantage of. A better understanding of the priorities and risk (refer to SS1 and 2) can help secure and target funding.	ORC staff time and resources. Release of the recently updated cost benefit analysis report from MPI. Input from stakeholders may also be necessary.	ORC draws upon the recently updated cost benefit analysis report from MPI and other sources to undertake a regional cost benefit analysis.	A regional cost benefit analysis to support applications to MPI (and others) for funding.	More funding is secured to undertake early intervention control work. An increase in the amount of work to control the spread of conifers at an early stage. Decisions about wilding conifer control are informed by regional cost benefit analysis. (These outcomes link to SS2 prioritising locations based on better knowledge).
	5. Funding levels are insufficient to address the problem. NWCCP funding is insufficient to maintain the current control programme and achieve the outcomes of the NZWCMS. Strong advocacy will be required to secure national funding beyond 2024.	ORC staff time and resources. Collaboration with LINZ, DOC, WCG, CWG, UCWCG, TAs and other key stakeholders such as the Wilding Pine Network is critical.	ORC collaborates with regional stakeholders and other regional councils to lobby central government to continue funding work through the NWCCP beyond 2024. ORC prepares a business case to inform preparation of the next LTP.	Meetings and/or communications held with central government to discuss future funding. A business case to support ORC LTP decisions on funding of wilding conifer control in Otago.	There is a continuation of, and increase in, the amount of NWCCP-funded wilding control work undertaken in Otago. There is longer-term certainty that there is a programme and continuity of delivery structures. An appropriate level of funding from ORC, supported by a business case.
	6. There has been little publicly funded control work outside of Wakatipu/Central Otago There is a need to undertake control in other management units where NWCCP-funded control work has not yet occurred.	ORC staff time and resources. Uptake by a community group, and support from ORC, TAs, LINZ and DOC is required. Guidance from WCG, UCWCG and CWG will be beneficial.	ORC undertakes a body of work to determine how to best support the establishment of community-led wilding conifer control groups outside of Wakatipu/Central Otago, and how to ensure that these are funded in a way that doesn't divert committed funds from existing programme areas.	Mechanisms to facilitate the establishment of community-led wilding conifer control groups outside of Wakatipu/Central Otago.	Community-led wilding conifer control groups are operating across the region, particularly in Wanaka.

	Situation	Inputs	Activities & Participants	Outputs	Outcomes / Impacts
Regulation	***7. It's not known whether the existing regulatory controls are adequate.*** There has been no assessment of whether the current regulatory controls (Regional Pest Management Plan (RPMP), Land and Water Regional Plan (LWRP), NES for Plantation Forestry (NES-PF), district plans) are fit for purpose. There has been little testing of these rules in the context of wilding conifers.	ORC staff time and resources. Funding for external contactors (e.g., legal advice). TAs help ORC staff to understand what rules/policies they have, how they apply and where (links to SS9).	ORC review of RPMP and LWRP rules to ensure they are fit for purpose and align with the NES-PF and MPI Wilding Conifer RPMP Guidance. Using monitoring information (see SS1) and following further stakeholder consultation, ORC assesses the effectiveness of the current regulatory regime to identify any required changes or additional controls at a regional level, and/or any requirement to advocate for further controls at a central government level and/or TA level.	An assessment of the effectiveness of RPMP and LWRP rules relating to wilding conifers and the alignment of these rules with national and district level regulations, including recommendations for improvement if necessary.	ORC's regulation is clear, enforceable, and fit for purpose to achieve the RPMP objectives. There is better alignment between district, regional and national-level regulation, where needed, making compliance and enforcement clearer and more streamlined.
	8. Compliance with the RPMP rules is ad hoc. Compliance issues are reported or noted opportunistically (not targeted or coordinated as such). Therefore, potential breaches may be going undetected. This links with SS7 – a better understanding of the rules is needed.	ORC staff time and resources. Input from WCG, UCWCG and CWG (and others) regarding where publicly funded work has occurred and where known non-compliances are occurring is required.	ORC design and implement a formal compliance monitoring programme focusing on areas where publicly funded control operations have been undertaken.	Effective mechanisms for reporting non-compliance are developed and non-compliances are followed up with in a timely manner. Monitoring for compliance is also included as a component of the monitoring programme in SS1.	Cleared areas are kept clear.
	9. Each of the region's TAs have different rules, policies and consent conditions relating to conifer control. In addition, compliance with these rules, policies and consent conditions is inconsistent.	ORC staff time and resources. Input is required from TAs regarding what rules/policies/consent conditions are in place and where they apply.	TAs provide a clearer picture of what relevant consent conditions apply and where.	Overview of TA rules and conditions relating to conifer control (spreadsheet or table) which outline opportunities for improvement.	ORC and TAs have a better understanding of controls provided at a district level and can work together for greater controls/better monitoring of existing controls at the TA level, where beneficial.

Benefits and Costs of Additional Investment in Wilding Conifer Control in the Otago Region

Prepared for Boffa Miskell on behalf of the Otago Regional Council

Matthew Williamson and Mehrnaz Rohani
12 October 2023



Contents

Tables

Figures

Glossary

Abbreviation	Stands for
BCR	Benefit cost ratio
CBA	Cost benefit analysis – a structured method for analysing the economic impact (costs and benefits) of a decision.
Density classes	Outlier: 0-1 % OPC infestation Sparse: 1-15% OPC infestation Intermediate: 15-75% OPC infestation Dense: 75-100% OPC infestation
EBITR	Earnings Before Interest and Taxes and Rent. Used as a measure of business profitability.
ETS	Emissions Trading Scheme - a market-based approach for reducing emissions of greenhouse gases by charging producers for the gases they emit and providing credits for those that remove gasses.
MPI	Ministry for Primary Industries
MU	Management unit – the administrative boundaries the country has been divided into for the National Wilding Conifer Control Programme
NWCCP	National Wilding Conifer Control Programme
NPV	Net present value – the sum of all costs and benefits discounted to today's dollars.
NZU	New Zealand Units – the emissions units that are traded as part of the ETS.
OAG	Operational Advisory Group – advisory group within the NWCCP providing advice on how and where operational activities are best delivered.
OPC	Overall percentage cover. Used to describe density of wilding infestation.
Phase one	Activity funded under the NWCCP between 2016/17 and 2018/19. $16m was allocated for this phase.
Phase two	Activity funded under the NWCCP between 2019/20 and 2020/21. In Budget 2019 ($21m) was allocated for this phase.
PV	Present value – the sum of costs or benefits discounted to today's dollars. Discounting is a way of recognising that a dollar today is worth more than a dollar tomorrow.
TEV	Total Economic Framework – a structured framework for valuing the benefits and costs of ecosystem services.
WCIS	Wilding Conifer Information System – administered by LINZ, WCIS collects details of infestations, control activities, operational areas and points of interest.

Acknowledgements

We would like to acknowledge Norman Mason and Robbie Price, Manaaki Whenua, for their modelling of future wilding conifer spread and ecosystem service impacts. These forecasts of infestation growth and water loss were used to estimate the benefits presented in this report.

We acknowledge and thank Maksym Polyakov for providing an advanced copy of the willingness to pay study used to value non-market impacts and for his advice on how to apply these results in this CBA; Dr John Helstrom and Sherman Smith (Manager, Wilding Conifer Management Programme, MPI) for providing advice and quality assurance throughout the development of this CBA; Simon Heddle-Baker, MPI for supporting with the collection of vast quantities of data required to do this analysis; and Keith Briden (Department of Conservation) and Graham Sullivan (Environment Canterbury) for their valuable feedback on the draft results.

Executive summary

Wilding conifers are invasive weeds that have a serious impact on New Zealand's primary industries and natural environment affecting native landscapes, land use, biodiversity, and cultural values. Introduced in the 1880s, these trees have spread from forests, shelterbelts and erosion control plantings and without control they will form dense forests (Department of Conservation). Manaaki Whenua modelling shows that if left unchecked, over the next fifty years wildings would spread to a further 500,000 hectares and 1.8 million hectares would be covered in dense forest. The aims of the New Zealand Wilding Conifer Management Strategy 2015–2030 are to prevent the spread of wilding conifers and to contain or eradicate established areas of wilding conifers by 2030.

This CBA builds upon the national analysis (Sapere, 2022) to understand the value gained at the regional level. For interested readers, the 2022 national analysis contains a large amount of additional detail and background discussion, and is available on both the Sapere research group, and MPI websites.

Investment to date recognises the substantial benefits from controlling wilding conifers

$37 million, covering five years from July 2016 to June 2021, was invested in the National Wilding Conifer Control Programme (NWCCP). A 2018 cost benefit analysis concluded that the benefits of control greatly outweighed the costs (Wyatt, 2018). It also highlighted that sustainable management of wilding conifers would require investment well into the future if the intention is to reduce infestations to a level that is manageable by landowners.

Additional investment was made in Budget 2020 with $100 million committed over four years to the NWCCP under the Jobs for Nature programme. This has seen the expansion of the control programme across New Zealand and with it, immediate benefits from job creation in regions that were hit hard economically by COVID-19. While the benefits of job creation were important for these communities, controlling wilding conifers has much larger societal benefits by protecting water for hydro power generation and irrigation, and the productive land saved from infestation.

Jobs for Nature funding comes to an end from 2023/24 with ongoing funding of $10 million per annum committed to the NWCCP. This level of funding would be insufficient for the programme to achieve control of wilding conifers on a national scale, with control activity scaled back from 49 active management units to 10 over a four-year period. Under this scenario, 42 per cent of the known national infestation would be actively managed while spread and regrowth would continue in the abandoned management units (MUs).

For Otago, control activity is scaled back from 89 per cent of known infestation, to 50 per cent.

We assessed the costs and benefits of four investment options

This report presents an updated cost benefit analysis of wilding conifer control for the Otago Regional Council and assesses the economic impact of additional investment in wilding conifer control for four investment options:

1) Status quo "losing the investment" – Scale back control activities to ten management units nationally, and four within the Otago Region.

2) Minimum "protect the investment" – continue control activity across the existing forty-nine management units[1] nationally, and fourteen within the Otago Region.

3) Intermediate "extend the investment" – expanding the activity to include a further eleven priority management units nationally, five of which are in the Otago Region.

4) Maximum "national control" – the intermediate option plus a further nineteen priority management units nationally, none of which are in the Otago Region. A slight increase in funding to management units identified in the status quo, minimum, and intermediate options is observed under the maximum option.

The purpose of this cost benefit analysis is to inform the investment decision. We, therefore, compare the costs and benefits from additional investment to the counterfactual (also referred to as the status quo option) of $1.8 million per annum estimated ongoing funding.

A total economic value framework has been used for categorising and calculating the costs and benefits of the programme. The framework includes the economic impact on both productive land use values, and 'non-use' cultural and biodiversity values of the controlled land. Modelling of wilding conifer spread and ecological system impacts, developed by Manaaki Whenua (Landcare Research), was used to calculate the result and is a significant advancement on previous analyses. The benefits of the programme were monetised using market and non-market valuation techniques. The only benefit that has not been monetised is Māori cultural values, which is described qualitatively and should be presented alongside the monetary results of the CBA.

[1] the administrative boundaries the country has been divided into for the National Wilding Conifer Control Programme

1. Framework for this cost benefit analysis

We constructed the CBA within a Total Economic Value (TEV) framework, due to the importance of ecosystem services including 'non-use' values such as biodiversity along with 'use' values (or market values). For example, 'use' values would be the value generated by primary producers on controlled land, whereas 'non-use' may be the value people place on biodiversity or pristine natural landscapes or significant cultural or historical sites, in particular for Mana Whenua, even though the general population may not use or see them; knowing they exist and will exist for future generations is of value.

Within a TEV Framework, an allowance is conceptually made for people who are willing to pay for the continued existence of a particular landscape, ecosystem or species. This is important when assessing pest control practices, when there is a reduced risk of losing species and biodiversity is retained or enhanced. The TEV framework is appropriate for this CBA and is widely used when dealing with ecosystem services and environmental impacts (Rohani et al., 2018; Sharp & Kerr, 2005).

An ecosystem services approach is a way of quantifying and incorporating what we implicitly value in the environment into production and governance practices. From a Te Ao Māori perspective (in line with MPI's Fit for a Better World strategic roadmap) the environment and obligation to protect it has value. This value is in addition to the value to Iwi and Hapū from specific sites and collectively owned Māori land, land which may be at risk from wilding conifers. When the intrinsic value of these services is not recognised in the marketplace, poor decision-making can occur. In contrast, their inclusion enables practices that enhance overall economic, environmental, and social values and advances decision-making that leads to more efficient and acceptable trade-offs between different values (The Royal Society of New Zealand, 2011).

1.1 Investment options being assessed

This CBA assesses the impact of three investment options against the counterfactual. The counterfactual is what would happen if additional funding was not secured, we call this the "status quo" option.

The options were developed through an iterative process with the programme's Operational Advisory Group (OAG). The group reprioritised all management units and used this ranking to determine which areas would be abandoned under the status quo option and which would be included under the minimum, intermediate and maximum options. A full list of the management units controlled under the options is provided in the national report.

Status quo "lose the investment" (control 50% of the known infestation)

Baseline funding of $1.8 million per annum continues from 2023/24. If no further investment is made, the programme would be substantially scaled back over the next four years. This would result in areas which are currently free from wilding conifers becoming re-invaded, the gains made on abandoned land would be lost and future benefits foregone as wilding conifers spread.

Of the 21 management units within Otago, only the four highest priority MUs (covering 49.7 per cent of the known infestation) would continue to be actively managed by 2025/26.

Proposed investment options

This report assesses the economic impact of additional investment in wilding conifer control for three investment options:

1. **Minimum "protect the investment" (control 89.4% of the known infestation)** – continue to support existing control activity across 14 management units
2. **Intermediate "extend the investment" (control 99.9% of the known infestation)** – expanding the activity to include a further five priority management units
3. **Maximum "national control" (control 99.9% of the known infestation)** – the intermediate option plus slightly higher funding in some management units.

A summary of the total hectares of known infestation that would be controlled under each of the proposed options is shown on the next page.

Table 1: Control (ha) by region for each option assessed

Region	Infestation (ha)	Hectares controlled for each option			
		Status quo	Minimum	intermediate	Maximum
Otago	481,514	239,090	430,500	480,894	480,894
Per cent of known infestation controlled	-	49.65%	89.41%	99.86%	99.86%

Source: WCIS

1.2 The identified impacts

We identified the following 'use' benefits the Otago region would obtain from wilding conifer control:

- primary production / productive land use
- water yields for hydro generation and irrigation
- reduced wildfire spread and damage risk
- protecting iconic landscapes for recreation and aesthetic value

And 'non-use' benefits

- avoiding biodiversity losses – including preventing soil legacies
- protecting Māori cultural values e.g. protecting sites of significance to Mana Whenua, and Māori land, from the impacts of introduced species.

The aim is to monetise the impacts where possible, though where this in not possible a qualitative assessment of the impact is appropriate and should be considered alongside the monetised CBA result.

The impacts on ecosystem services are measured and monetised through the TEV framework. A report published by Treasury (NZIER, 2018) demonstrates the relationship between the ecosystem services approach, its components, and the valuation techniques that monetise their use and non-use values.

Figure 1: The relationship between ecosystem services and the TEV framework

Identify		Quantify	Value	
Ecosystem services			**Use values**	**Non-use values**
Provisioning	Food	Various measures depending on subject matter	Forgone production, Loss averting expenditures, Alternative sources	
	Fibre			
	Materials			
	Energy			
	Water Quantity			
Regulating	Water quality		Avoided treatment cost	Stated preferences
	Water flow variability		Avoided flood damage	
	Climate amelioration (local)		Avoided costs	
	Climate amelioration (global)		Carbon credit values	
	Soil stabilisation		Avoided erosion costs	
	Biodiversity (resilience)		Biodiversity offsets/ Replacement costs	
Cultural	Biodiversity (preference)		Wildlife viewing	Stated preferences
	Recreation		Revealed preferences	
	Aesthetic			
	Heritage			
Supporting	Nutrient cycling		Forgone production	
	Pollination		Alternative sources	

Source: (NZIER, 2018)

1.2.1 Monetised benefits

Using the framework in Figure 1 as a guide, we have monetised productive land use, and water yield benefits using market values for foregone production. Specifically, these include:

- Productive land use – valued using sheep and beef farm profitability (earnings before interest, taxes, and rent (EBITR) from sheep + beef survey data)
- Water yields (in hydro catchments) - value of foregone hydro generation using the resource rents series produced by Statistics NZ, which is broadly equivalent to the EBITR measure.
- Water yields (irrigation) – valued using the value of irrigation based on profitability of farms on irrigated land (NZIER & AgFirst Consultants NZ Ltd, 2014).

We value reduced fire risk using an avoided costs method. To do this we use a paper on the economic cost of wildfires (BERL, 2009) prepared for Fire and Emergency NZ.

We have applied a non-market value for the cultural ecosystem services - biodiversity, recreation, and landscape aesthetics. There are monetised using a stated preference method. The non-market valuation study (Polyakov et al., 2021) reveals the use and non-use values from wilding control such as scenery, recreation and the existence of ecosystems and species through Willingness to Pay (WTP) survey of households. We used this study's results through the value transfer methodology for monetisation of these benefits.

A full list of calculated costs and benefits and values used to calculate them is provided in the national wilding conifers report, attached.

1.2.2 Non-monetised benefits

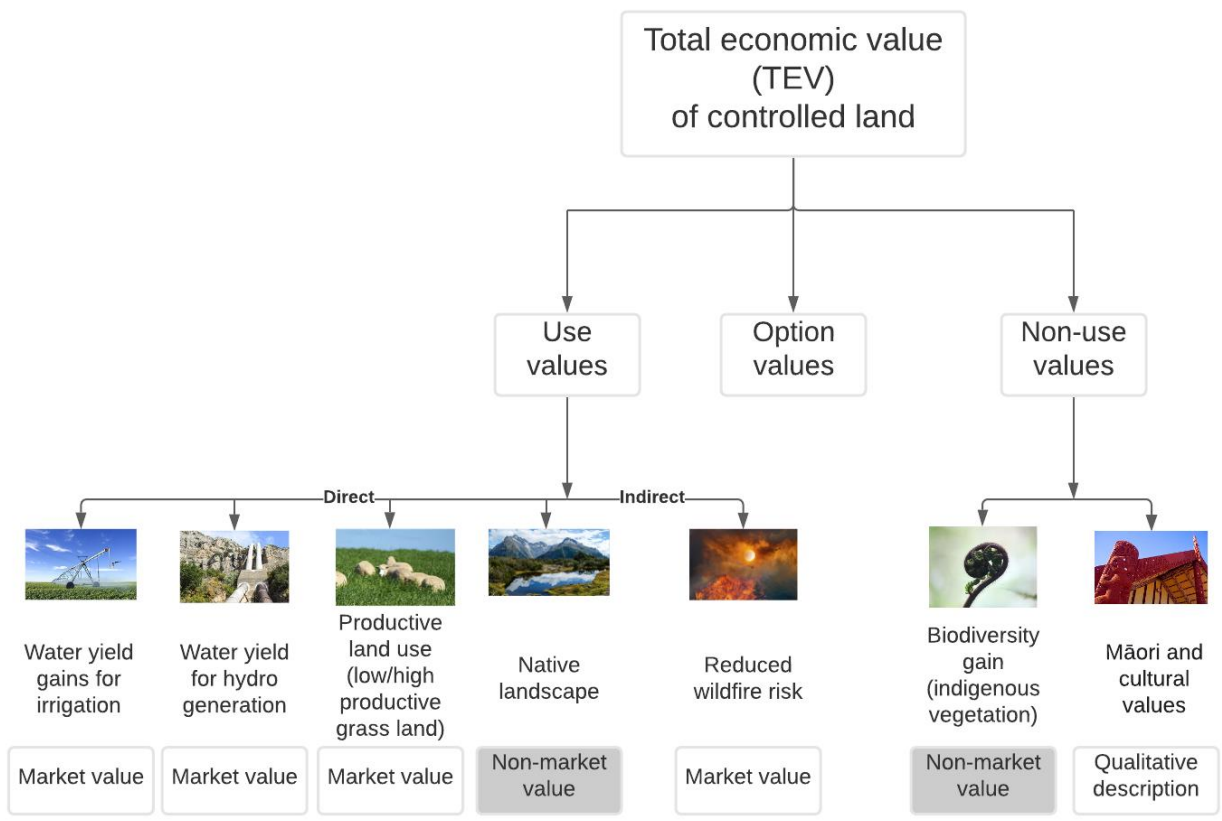
While every effort has been made to monetise the identified benefits, Māori cultural values have not been monetised. There are two main reasons for this:

- Māori values are holistic and can include principles, intrinsic, tangible and intangible values, and there is not enough information available for these values.
- Each iwi/hapū may have its own tradition in this respect, which makes a uniform discussion of 'Māori heritage values' problematic.

Therefore, the value Māori might place on control of wilding conifers has been qualitatively described in section 5.5 Māori cultural values. This qualitative assessment should be considered alongside the Benefits to Cost Ratio (BCR) calculation when funding decisions are made for wilding conifer control.

A summary of the benefits under the total economic framework is illustrated below.

Figure 2: Wilding conifer benefits under TEV framework



Source: Sapere. Wildfire photo: credit Brian High

1.2.3 Costs

Costs of each option are defined as the additional financial costs (or required fund) of the option compared with the status quo option. The costs included in this CBA consist of:

- Programme control costs
- Fixed programme management costs

- Deadweight loss of taxation (20 percent of control and programme costs)

Programme control and programme management costs have been provided by MPI for the nine year period from July 2022 to June 3031.

1.2.4 Valuing the area controlled and avoided spread

By controlling wilding conifers, we gain back some or all of what has been lost due to the impacts of wildings. By reducing or eliminating seed sources, the programme is also protecting against future spread and the losses that result. We have calculated the benefits based on the removal of existing infestations and the spread avoided as a result.

Modelling of future wilding conifer spread was developed by Manaaki Whenua and adapted for this CBA. Forecasts were provided at a highly granular level (1km x 1km grid squares) and included forecasts of infilling (local increase in population density) and invasion to neighbouring grid squares. The modelling does not include the impact of long distance spread events, so is likely to underestimate the extent of spread and impacts over the longer term.

The methods used and efforts put into calculating wilding conifer spread and the impacts on ecosystem services are a significant advancement on previous cost benefit analyses. Geospatial modelling has been used to ensure the impacts from wilding infestation on water yields, productive land use, and biodiversity have been accurately mapped to layers on land use, hydro and irrigation catchments and native vegetation. A description of the methods used by Manaaki Whenua is included in the national report. The application of these forecasts and geospatial modelling methods used to calculate the benefits are described in section 5 *Calculation of benefits*.

1.2.5 Employment gains and ETS impacts are excluded

In CBAs, additional benefits from employment are usually ignored. In most cases, there is a displacement effect where the investment results in workforce movement from one job/sector to another meaning there is no net gain. Gains from employment should be included when there is high unemployment, but this is not the case in the current macroeconomic environment, so we have excluded marginal employment benefits from the CBA.

We have also not included the impact of carbon emissions in the CBA. There are two reasons for this:

1. Emissions are capped under the Emissions Trading Scheme (ETS) so emission reductions in one area in the economy will free up New Zealand Units (NZUs) to be used by emitters in another area. This is also known as the waterbed effect (Energy Resources Aotearoa, 2021). We have assumed any changes to carbon sequestration or emissions are transfer payments and should not be counted in the CBA.

2. Wilding conifers cannot be registered under the ETS due to their status as tree weeds. Consequently, there is no market value for the carbon sequestered by wilding conifers and no obligations under the ETS to surrender NZUs for the removal of wildings[2].

Despite not including emissions in the CBA, we have quantified the benefits of avoided carbon emissions from non-renewable energy generation to provide context on the impact of reduced water yields for hydroelectricity. This analysis is provided in the national report.

[2] With the exception of a few wilding conifer forests that were registered with the ETS before the rule change to exclude pest trees. The impact of these forests is assumed to be negligible.

2. Summary of the CBA result

Table 2 summarises the present value of costs and benefits for each wilding conifer control option over 50 years (consistent with the time period used in the 2018 CBA). The net present value (NPV) and benefit cost ratio (BCR), two of the efficiency tools that are used in CBAs, are also presented.

We have included the counterfactual option (status quo) for comparison. Cost benefit analysis are used to inform investment decisions and would ordinarily show only the additional costs and benefits for the identified investment options compared to the counterfactual.

Table 2: Summary of the CBA results for the status quo, minimum, intermediate and maximum options modelled over 50 years

Present value ($ million)		Status quo – lose the investment	Minimum – protect the investment	Intermediate – extend the investment	Maximum – national control
Benefits	Productive land use	$131	$482	$534	$534
	Hydro	-$61	$71	$176	$176
	Irrigation	$106	$215	$381	$385
	Cultural / biodiversity	$561	$2,063	$2,101	$2,101
	Fire	$5	$78	$84	$84
	TOTAL	$742	$2,909	$3,276	$3,279
Costs	Programme	$15	$25	$29	$32
	DWL	$3	$5	$6	$6
	TOTAL	$18	$30	$35	$38
Total economic value					
Net present value		**$724**	**$2,879**	**$3,241**	**$3,241**
Benefits : Cost Ratio (BCR)		**42**	**96**	**93**	**86**
Use value					
Net present value		**$164**	**$815**	**$1,139**	**$1,140**
Benefits : Cost Ratio (BCR)		**10**	**28**	**33**	**31**

2.1 Status quo would result in lost benefits of $2.1 billion

The status quo option has a net present value of $724 million over 50 years. However, this option is a substantial disinvestment that would see the area controlled reduce from 89.41 per cent of the known infestation to 49.65 per cent. As a result, there would be a substantial loss in benefits as wilding conifers re-infest land no longer under active management. Relative to the minimum option (continuing funding at the level provided under the Jobs for Nature programme) we estimate losses of $2.1 billion over 50 years (measured in 2021 dollars) from lost primary production, reduced water yields, loss of biodiversity and cultural values and increased fire spread and damages. These losses are enormous compared against the cost savings (including deadweight loss) of $13 million by scaling back the programme.

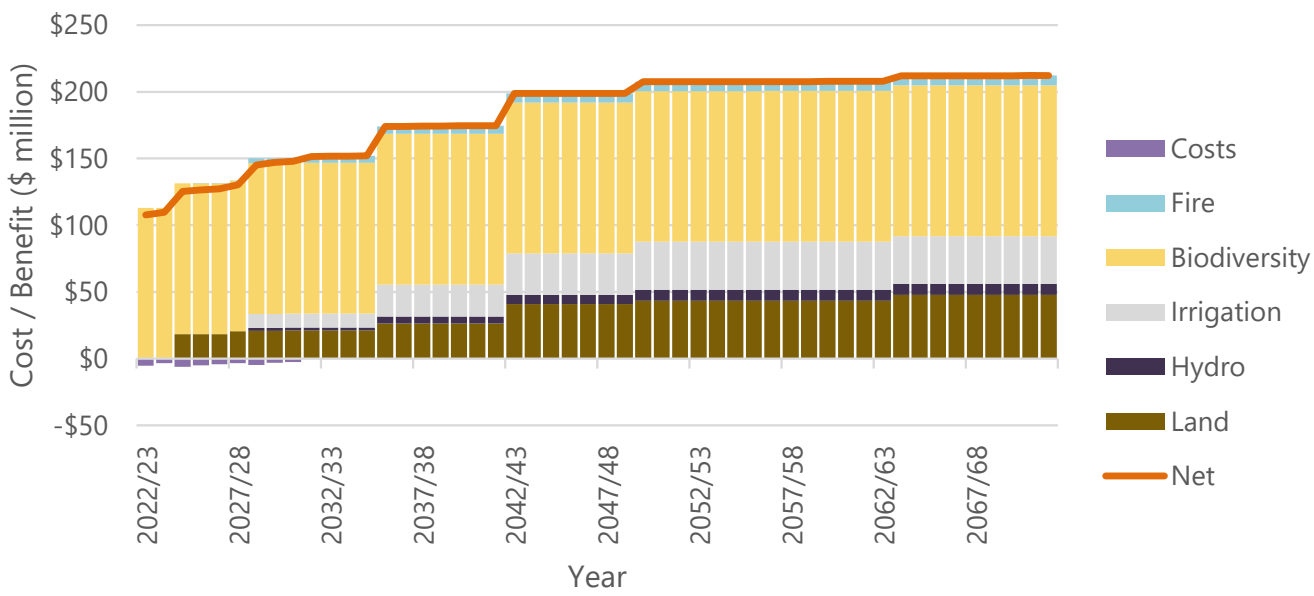
2.2 Significant benefits from additional control

Investment in the minimum, intermediate and maximum options would ensure the losses from scaling back activity are avoided and provide additional benefits. The benefits to cost ratio of wilding conifer control shows significant return for every dollar spent for the minimum option at 96:1, intermediate option at 93:1 and maximum option at 86:1, this is in line with previous analysis (Wyatt, 2018).

We note that, across all three options:

- Irrigation benefits and productive land use account for 24 - 28 per cent of the TEV-based benefits, at around 7 - 12 per cent and 16 - 17 per cent of the total benefits respectively. Irrigation is particularly important due to the high value derived from irrigation in Otago, and the infestation of wilding conifers in the irrigation catchments for these regions. This is discussed further in section 5.2.2.
- Benefits from reduced fire risk account for 0.7 – 2.7 per cent of the total benefits.
- Cultural / biodiversity value makes up 64.1 – 75.8 per cent of the benefit and is a significant component. We consider this to be a low estimate as Māori cultural values are not monetised. A qualitative discussion on Māori cultural values is included in section 5.5 *Māori cultural values*.
- Many of the benefits accrue in the medium to long term since they represent the losses that would be avoided by controlling wilding conifers before they spread and densify. Figure 3 illustrates the timeline of marginal costs and benefits (by component) of the minimum option.

Figure 3: Value of costs and benefits on minimum option over the 50 year time horizon (undiscounted)

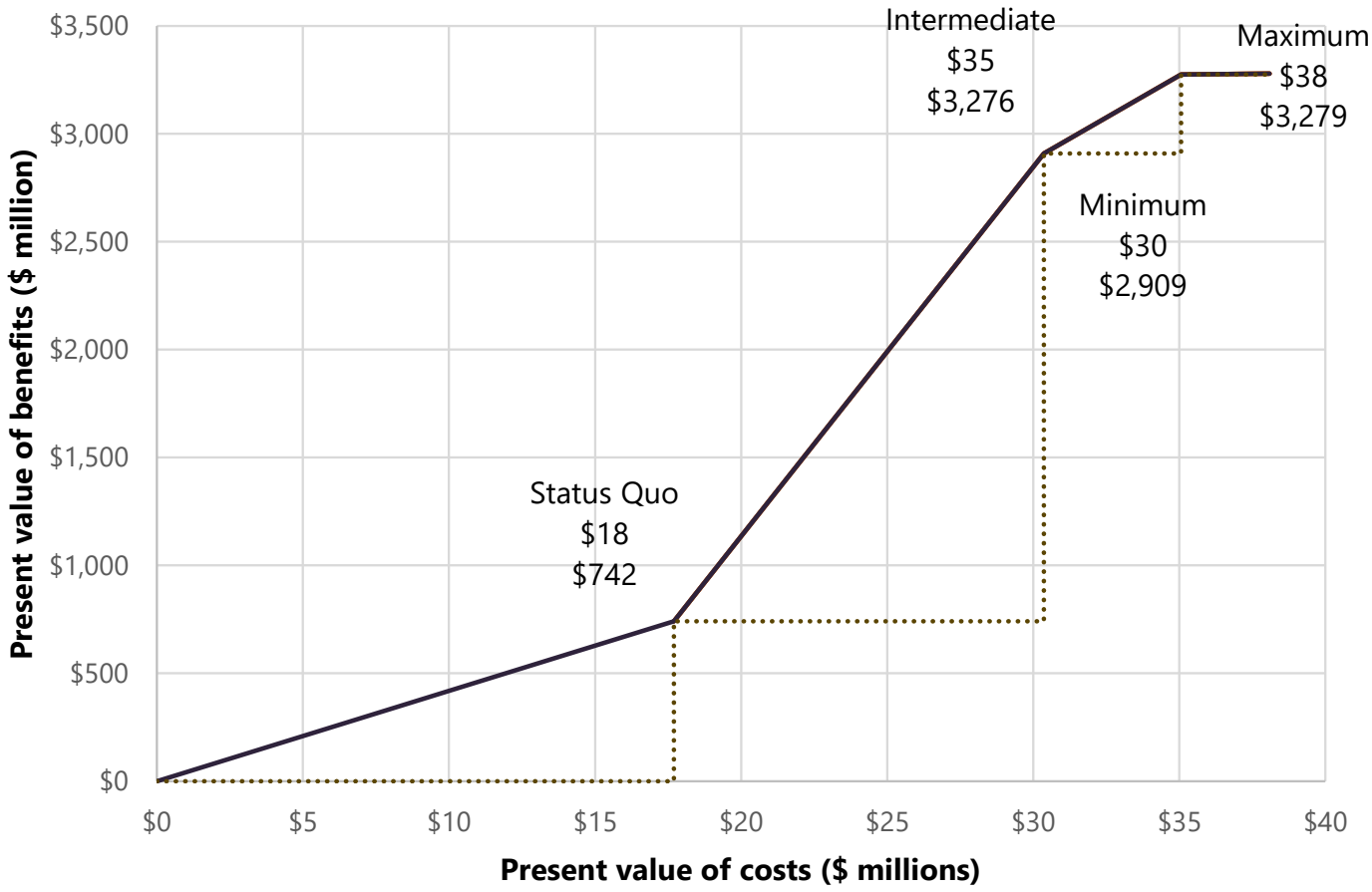


Detailed information of the marginal costs and benefits of each option is provided in sections 4 and 5.

2.3 Minimum option represents the best value for money

The results of the CBA show that the minimum option (BCR of 96) presents the best value for each dollar spent in this programme. Figure 4 shows that the net present value of the control programme increases at a decreasing rate. Therefore, the fourteen MUs controlled under the minimum option produce greater benefits per dollar spent than the next groups of MUs added, i.e., five additional MUs under the intermediate and maximum options. Additionally, the status quo option produces less benefits per dollar spent than the minimum option. This reflects the large disbenefits experienced under this option on land currently controlled.

Figure 4: Marginal benefits compared to costs for each option ($ millions)



Source: Sapere

High priority areas are selected based on the spread risk of the wilding species, the vulnerability of the landscape to invasion, and the cost effectiveness of control. The decreasing BCR for intermediate and maximum options reflects this prioritisation.

2.3.1 The result needs to be viewed alongside practical and strategic considerations

While the minimum option is the preferred option based on a 'maximise benefits: cost ratio rule', it might not be the preferred option to achieve the National Programme objectives or deliver the required level of wilding conifer control to the point that land can be managed by landowners, or when considering non-monetized values such as Māori cultural values. In addition, significant additional risk-adjusted returns are accrued in the intermediate and maximum options, both of which have a higher NPV than the minimum option. A higher NPV indicates that the additional spend under these options is more than the required return on capital and should be pursued. Therefore, the decision makers should look at the CBA results in the context of the wider business case and specifically the strategic case.

2.4 General assumptions

We carried out the CBA based on the following assumptions and considerations:

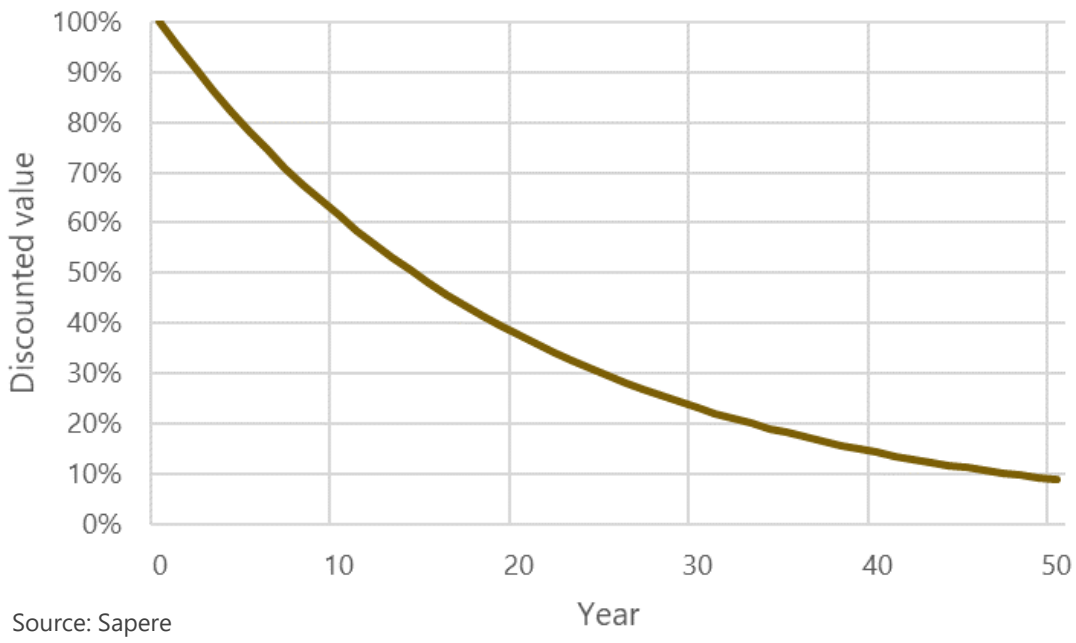
- Time zero, future costs and benefits are calculated starting 2022/23.
- Base date, the date that is used to standardise the valuation of all monetised benefits and costs, is 2021/22.
- The analysis period starting from time zero is 50 years. The nature of wilding conifer control is that costs are largely incurred up-front, and the benefits accrue gradually thereafter. A 50-year horizon would seem appropriate to ensure the benefits are adequately included in the result.
- While the cost of controlling each MU reduces over time, the cost of control activity will be ongoing until infestations are controlled to a level that they can be managed by landowners and communities. With the required funding, the majority of MUs under the minimum option will be transitioned to local management by 2030/31. MUs under the intermediate and maximum options are likely to be able to transition 6 – 12 years after commencement of control.
- Discount rate is 5 per cent per annum as per Treasury guidance (The Treasury, 2020) – this is the rate that reflects the time value for money and used to calculate the present value of the costs and benefits at time zero.

The effect of discounting costs and benefits

We discount because a dollar today is worth more than a dollar in a year's time. It also assures the decision maker that when assessing an investment decision it can be compared against any other investment decision of equal risk (The Treasury, 2015).

A 5 per cent discount rate means that at 15 years the benefits and costs are halved, and by 30 years we recognise less than 25 per cent of the value.

Figure 5: Impact of discounting



Source: Sapere

3. Calculation of costs

Additional costs have been estimated for each investment option, these include:

1. Control and fixed programme management costs – the cost of managing and administering the NWCCP, the cost of control activity including control staff, project managers and contractors, and the cost of post control monitoring.
2. Deadweight loss of taxation (DWL) - this is the welfare loss of taxpayers, and NZ Treasury suggests CBAs should include a deadweight cost equal to 20 per cent of project costs that are funded from general taxation (The Treasury, 2015).

Control and programme management costs have been provided by MPI.

We account for the deadweight loss of taxation where an investment is funded from taxation (or a rate). The deadweight loss of taxation recognises the welfare loss that arises when money is taken away in the form of taxes, for example, income tax on labour income tends to discourage working in favour of leisure or home-based activities (The Treasury, 2015). Treasury guidance is to apply twenty per cent to the cost of a project funded through general taxation.

The costs used in this CBA are summarised below both in nominal terms and as a present value (PV)

Table 3: Costs of the Status quo option ($ millions)

Status quo	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	PV
Control and Programme	$3.9	$1.7	$1.8	$1.7	$1.7	$1.5	$2.4	$1.8	$1.8	$14.8
DWL	$0.8	$0.3	$0.4	$0.3	$0.3	$0.3	$0.5	$0.4	$0.4	$3.0
Total	$4.7	$2.0	$2.2	$2.1	$2.1	$1.8	$2.9	$2.2	$2.1	$17.7

Table 4: Costs of the minimum option ($ millions)

Minimum	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	PV
Control and Programme	$4.4	$2.8	$5.0	$4.2	$3.6	$2.7	$4.1	$2.6	$2.0	$25.3
DWL	$0.9	$0.6	$1.0	$0.8	$0.7	$0.5	$0.8	$0.5	$0.4	$5.1
Total	$5.3	$3.4	$6.0	$5.0	$4.3	$3.3	$4.9	$3.1	$2.4	$30.4

Table 5: Costs of the intermediate option ($ millions)

Intermediate	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	PV
Control and Programme	$5.4	$3.7	$5.7	$4.7	$4.2	$3.0	$4.3	$2.7	$2.4	$29.2
DWL	$1.1	$0.7	$1.1	$0.9	$0.8	$0.6	$0.9	$0.5	$0.5	$5.8
Total	$6.5	$4.4	$6.9	$5.6	$5.1	$3.6	$5.1	$3.2	$2.9	$35.1

Table 6: Costs of the maximum option ($ millions)

Maximum	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	PV
Control and Programme	$5.9	$4.5	$6.5	$5.4	$4.3	$3.0	$4.4	$2.7	$2.4	$31.7
DWL	$1.2	$0.9	$1.3	$1.1	$0.9	$0.6	$0.9	$0.5	$0.5	$6.3
Total	$7.1	$5.4	$7.8	$6.5	$5.1	$3.6	$5.2	$3.2	$2.9	$38.1

Source: MPI, Sapere Analysis

4. Area controlled

Costs and benefits are a function of the area controlled. The impact of controlling an area means existing infestations are removed and future spread is avoided.

4.1.1 Control of existing infestations

Currently the programme has funding to control 430,500 hectares of infestation. A reduction in funding to $1.8 million per annum under the status quo option would see this amount drop to 239,090 hectares. Table 9 displays the hectares controlled under each option by density class[3].

Table 7: Hectares controlled by density class in 2022/23

Density	Status quo	Minimum	Intermediate	Maximum
Outlier	8,673	11,715	11,743	11,743
Sparse	152,733	277,419	317,216	317,216
Intermediate	63,632	123,502	133,931	133,931
Dense	14,052	17,863	18,003	18,003
Total	*239,090*	*430,500*	*480,894*	*480,894*

Source: Sapere analysis

We have applied general assumptions for the time required to control an infestation based on density class. These assumptions are based on an area being controlled once every three years. There will also be some level of ongoing maintenance control that may be required by landowners.

Table 8: Transition through density classes as a result of control

Starting density	Infestation at 3 years	Infestation at 6 years	Infestation at 9 years	Infestation at 12 years
Dense	Dense	Sparse	Outlier	None
Intermediate	Sparse	Outlier	None	
Sparse	Outlier	None		
Outlier	None			

The above assumptions are based on advice from the NWCCP. For the purposes of this CBA we assume that as an end state, no wilding conifers remain post-control but we note that this is not always the case. Control with the aim of removing wilding conifers frequently fails to kill 100 per cent

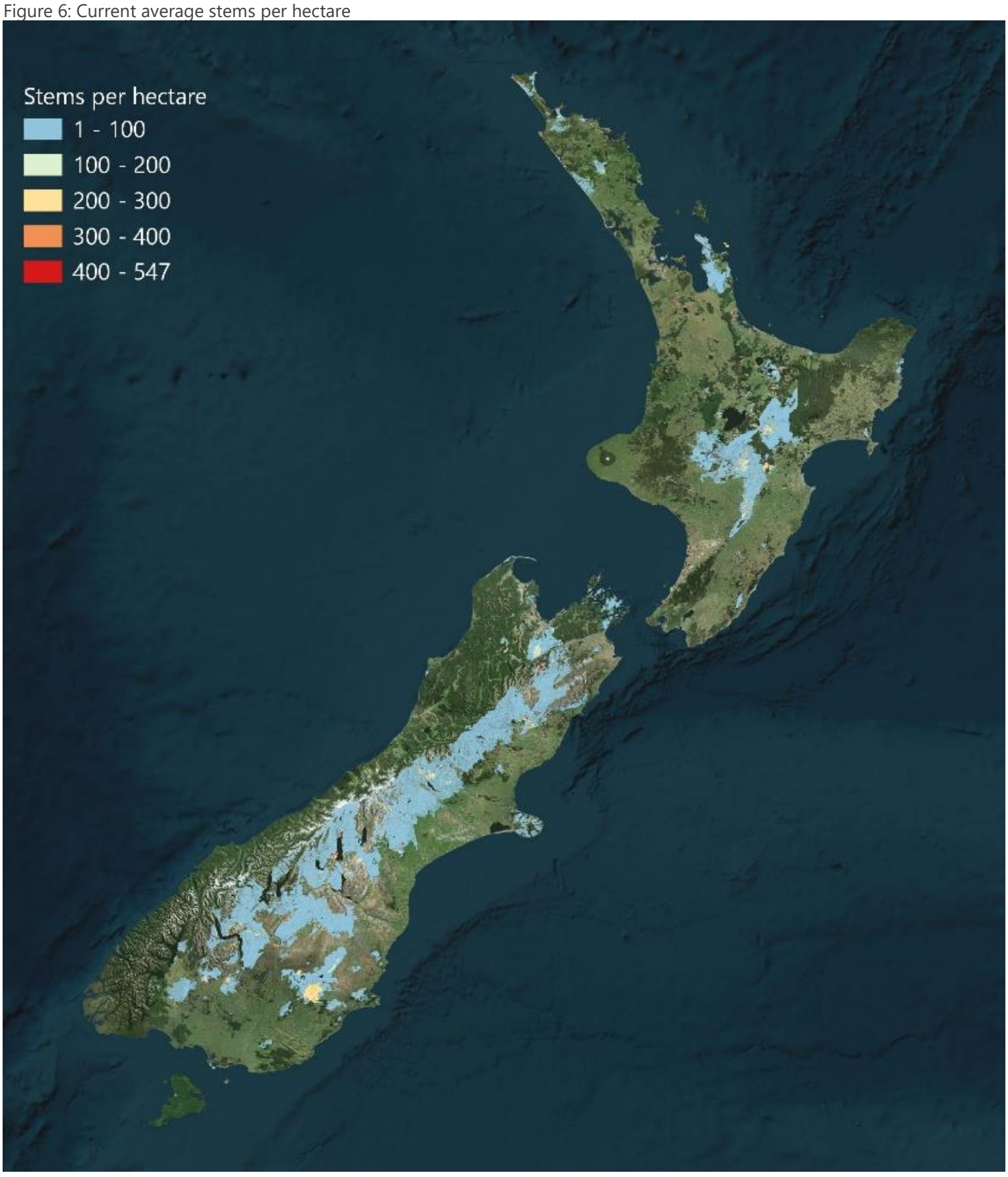
[3] Density classes are defined as: outlier 1-0% overall percentage cover (OPC), sparse 15-1% OPC, intermediate 75-15% OPC, dense 100-75% OPC

of trees, and may result in post-removal dominance by other non-native species, or reinvasion by wilding conifers (Dickie et al., 2021).

4.1.2 Future spread avoided

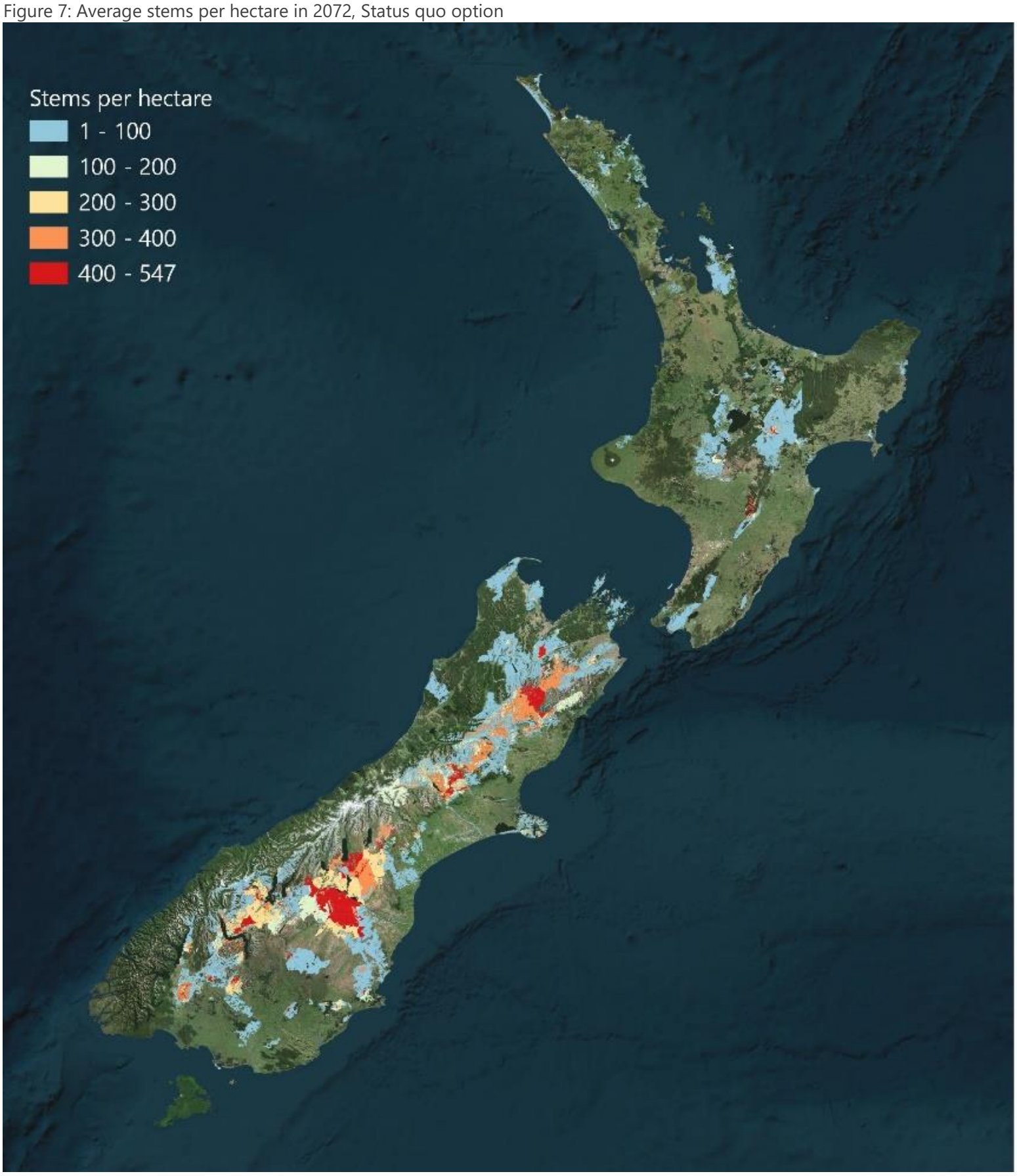
By controlling existing infestations, we avoid future spread and densification. Maps of the current infestation and the infestation following control under each of the options are presented below. The results are marked, particularly the difference in coverage between the minimum and status quo options.

Figure 6: Current average stems per hectare



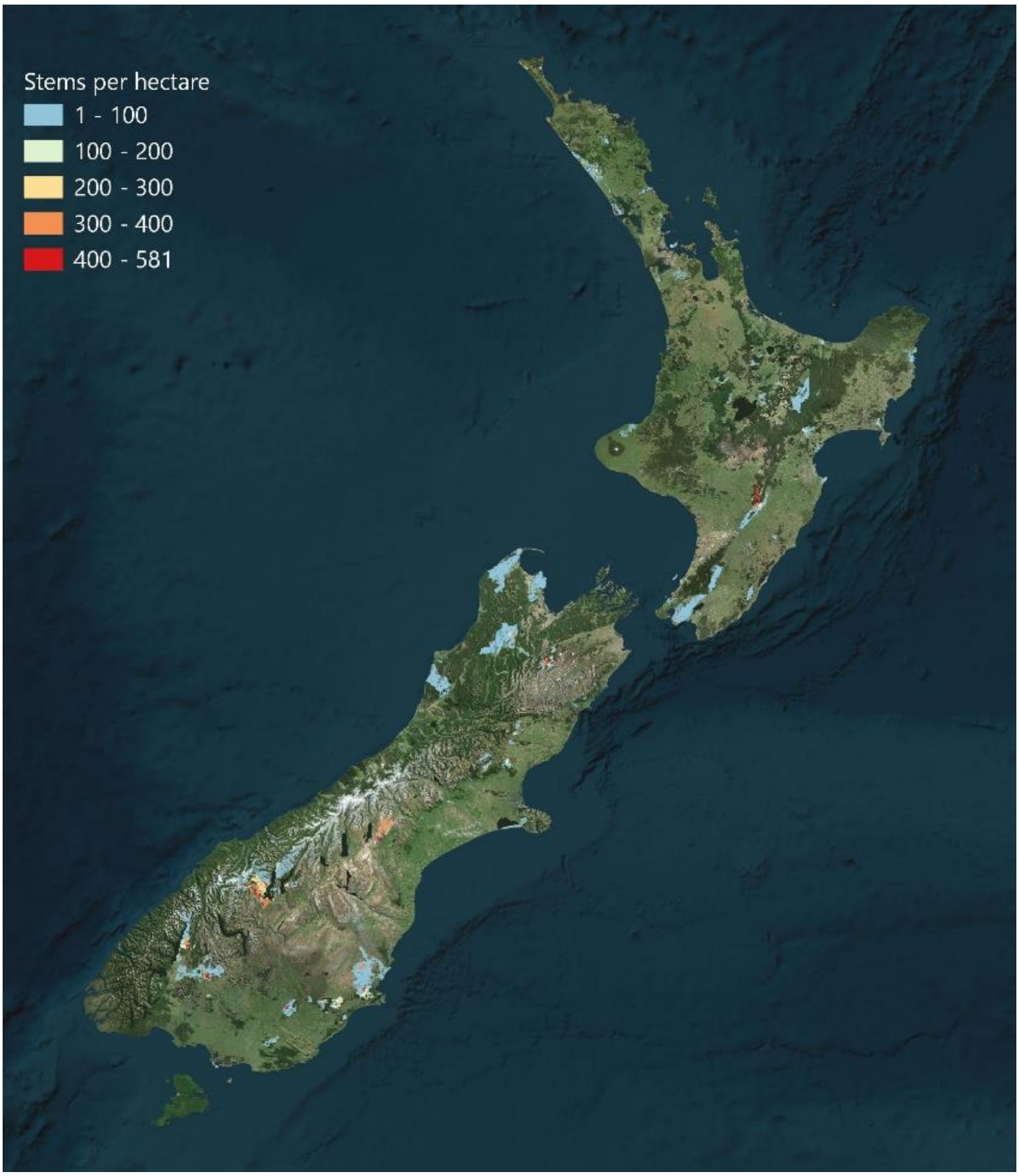
Source: Sapere Analysis in conjunction with Landcare Research

Figure 7: Average stems per hectare in 2072, Status quo option



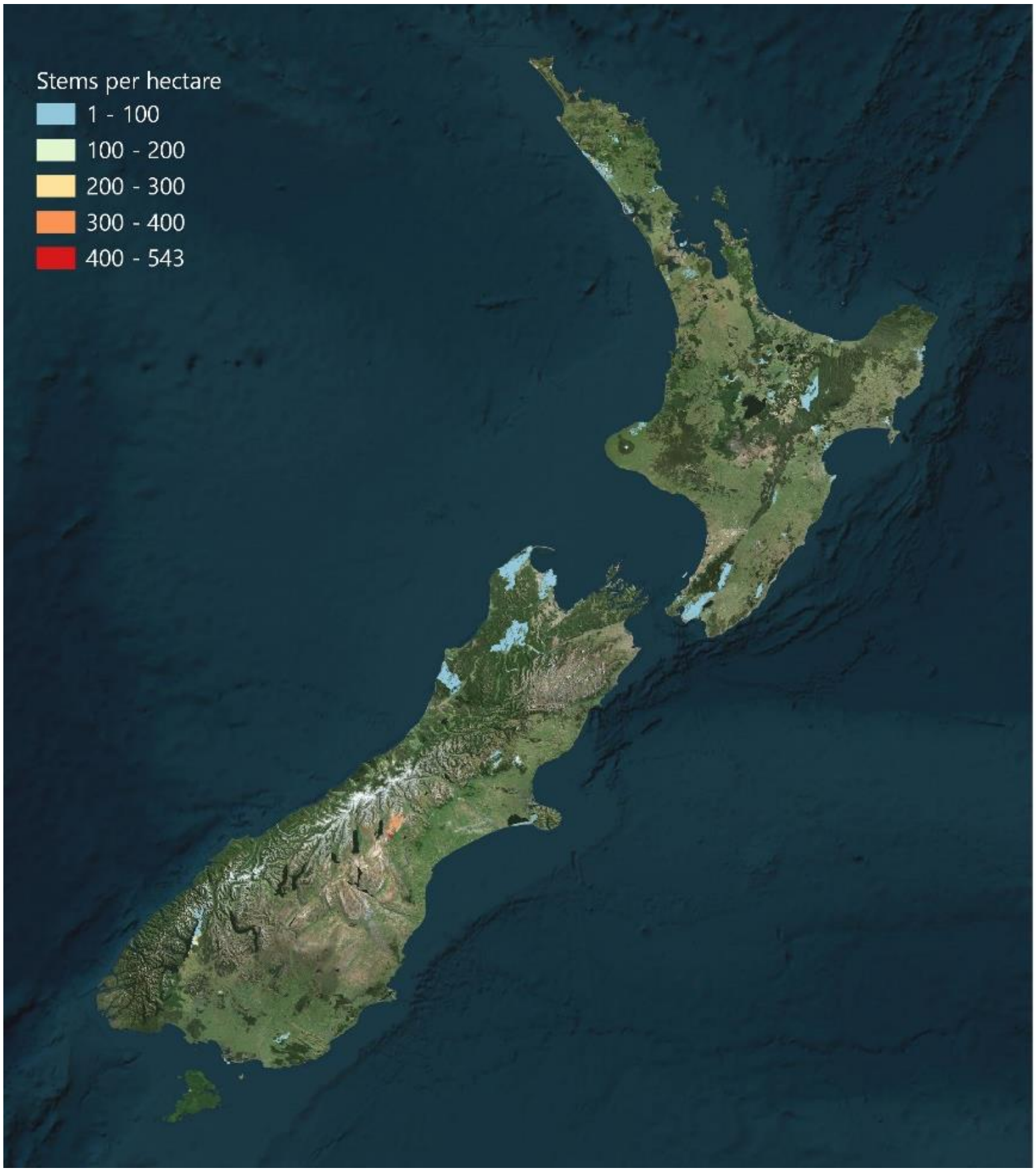
Source: Sapere Analysis in conjunction with Landcare Research

Figure 8: Average stems per hectare in 2072, Minimum option



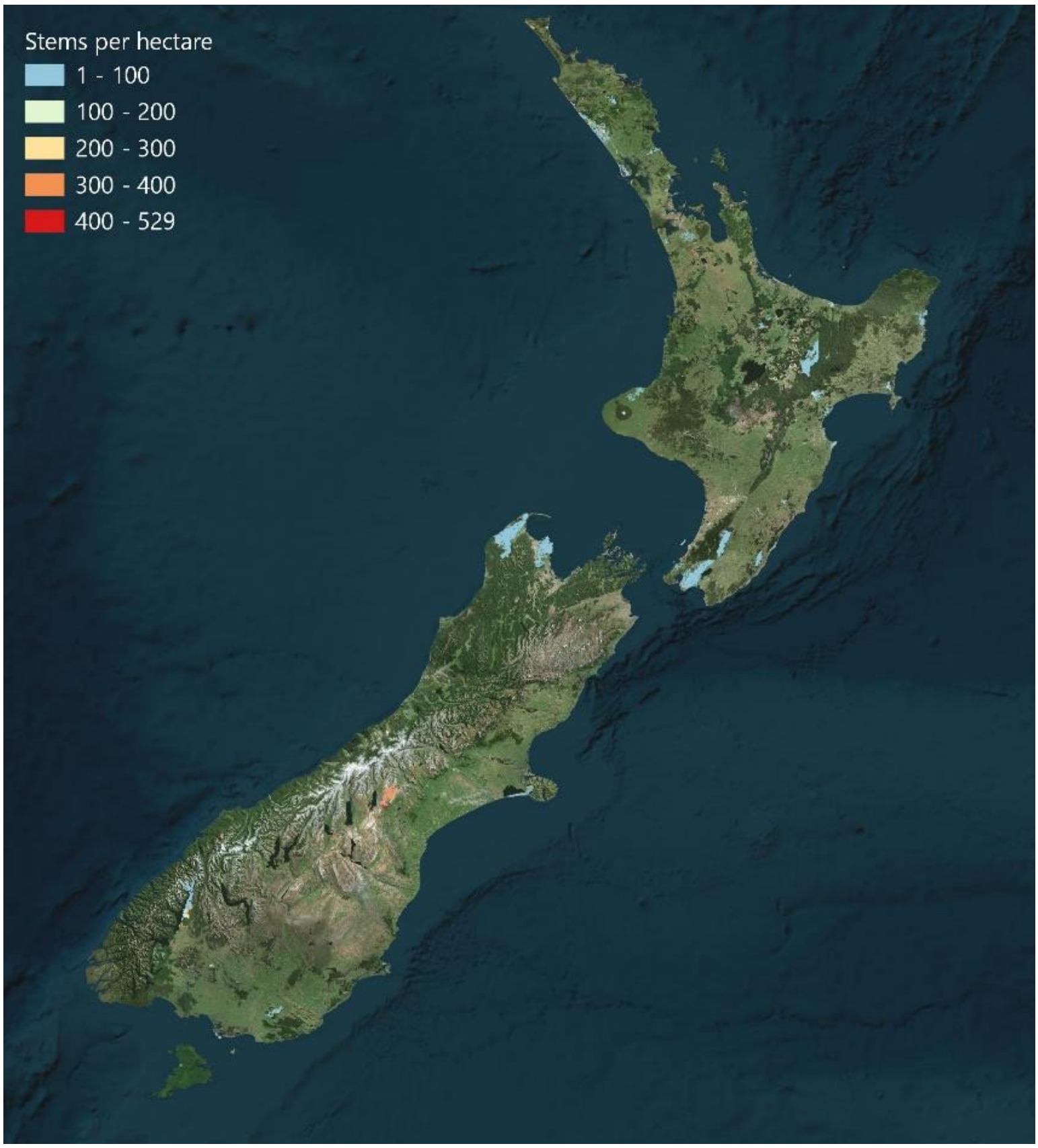
Source: Sapere Analysis in conjunction with Landcare Research

Figure 9: Average stems per hectare in 2072, Intermediate option



Source: Sapere Analysis in conjunction with Landcare Research

Figure 10: Average stems per hectare in 2072, Maximum option



Source: Sapere Analysis in conjunction with Landcare Research

5. Calculation of benefits

This section steps through the benefits from control of wilding conifers. We outline the volumes, values and assumptions used to arrive at the result.

5.1 Productive land use

Invasion of wilding conifers reduces the productive potential of land. Spread occurs most readily on ungrazed land with low vegetation density, and is least likely to occur in dense vegetation, or where intensive grazing is practiced (Ledgard, 2001) (Buckley et al., 2005). In the absence of control, moderately or infrequently grazed grassland and pasture will be lost to wilding pine invasion, and economic potential with it.

5.1.1 Defining vulnerable productive grassland impacted by wilding invasion

We define the land most susceptible to production loss as low producing and high producing grasslands using the Ministry for the Environment's land use classifications 2016 (Ministry for the Environment, 2020). Sub classifications were used to identify grazed and ungrazed land. Other productive land use types like forestry and horticulture, are assumed to be less vulnerable to wilding conifer spread, and self-manage the impact of wilding spread on their operations.

Manaaki Whenua modelling of infilling and long distance spread is used to define invasion of low and high producing grasslands. Spread assumptions are determined by land cover and grazing intensity and use establishment rates derived from (Buckley et al., 2005). Based on this modelling, we assume spread on intensively grazed land is zero and on all other grasslands the average population growth rate has been applied.

Grazing intensity is defined at a regional level using Statistics NZ Agricultural Census data. Regions with an average sheep per hectare of 8 or higher across land dedicated to sheep farming are considered to have intensive sheep farming.

Table 9: Grazing intensity, sheep per hectare by region

Region	Grazing Intensity	Sheep per ha
Auckland	Low	6
Bay of Plenty	High	8.3
Canterbury	Low	4.2
Gisborne	High	9.1
Hawke's Bay	High	9.4
Manawatu-Whanganui	High	9.4
Marlborough	Low	3.1
Nelson	Low	..c*
Northland	High	9.1
Otago	Low	3.9
Southland	High	8.4
Taranaki	High	8.5
Tasman	High	8.5
Waikato	High	9.4
Wellington	High	9.1
West Coast	Low	5.1

Source: Sapere analysis using Statistics NZ data, *data supressed for confidentiality reasons

5.1.1.1 Adjustment for loss of vulnerable productive grassland to permanent forestry

An emerging issue is the impact of the Emissions Trading Scheme on land conversions. High carbon prices are driving sales and conversion of marginal productive grassland into permanent forest. Since we have assumed the impacts of carbon credits and emissions balance out in the economy, we do not value this income. However, looking at recent land sales and conversions (Orme & Orme, 2021) as a percentage of all grasslands we estimate this affects less than one per cent of vulnerable productive land. Given the impacts are expected to grow as carbon prices increase, we have assumed no benefits would be gained on one per cent of vulnerable productive grassland.

5.1.2 Value of productive sheep & beef land

The value of productive grassland has been estimated by applying the earnings before interest, tax, and rent (EBITR) per hectare for sheep and beef farming. Beef + Lamb NZ recommend using EBITR as a measure of "earning power" (Beef + Lamb New Zealand, n.d.). The values we have applied for low and high producing grasslands are:

Figure 11: Values applied to low and high producing grasslands

Land Use Classification	Value per hectare, per annum
Low producing grassland	$52.89[4]
High producing grassland	$344.45[5]

Source: Beef + Lamb NZ: Sheep & beef farm survey

5.1.3 Production loss from invasion

We apply the following loss assumptions based on density class:

Table 10: Assumed production loss by density class

Density	Production loss
Outlier	2%
Sparse	20%
Intermediate	30%
Dense	100%

[4] 2020/21 estimated EBITR for Class 1 S.I. High Country New Zealand
[5] Mean EBITR for all Hard Hill Country and Hill Country classes

5.1.4 Productive land use benefits

The following shows the value of the additional benefits derived over 50 years under the four investment options:

Table 11: Productive land use benefits 50 year PV ($ millions)

Component	Status quo	Minimum	Intermediate	Maximum
Low producing sheep and beef	$121	$451	$492	$492
High producing sheep and beef	$12	$37	$48	$48
Loss of productive land due to ETS	-$1	-$5	-$6	-$6
Total Present Value	$132	$483	$534	$534

Source: Sapere analysis

5.2 Water yield benefits

The spread of wilding conifers reduces surface flows and aquifer recharge in water-sensitive catchments. Less water reduces the productive value derived from irrigation and hydro generators, and the use values enjoyed in outdoor recreation. Several studies have attempted to estimate the water yield reduction attributable to wilding conifer spread. When pastoral land becomes densely infested with wilding conifers, annual water yield reductions of between 30 – 81 per cent have been found[6]. Work undertaken by Scion found an average reduction during low-flow conditions of approximately 16 per cent across three South Island catchments in water-afforestation studies. Scion noted that for the purposes of estimating the water impact of wilding conifers, this value could be conservative as wilding conifer stands have a much higher interception effect, because of their rougher canopy surface. Wilding conifer stands can also grow in the upper reaches of catchments where plantation planting wouldn't and can therefore reduce low-flow yields more significantly. Water yield reduction in this CBA relies on the analysis of Manaaki Whenua, which uses the WATYIELD model (Fahey et al., 2010). Fahey's research found a 40 per cent reduction in mean annual flow with 2/3 of an experimental catchment planted in pines.

The previous CBA (Wyatt, 2018) evaluating phase two of the wilding conifer control programme found that impacts on water yields dominated the results. This remains the case for phase three of the control programme.

[6] Data from a number of catchment studies have shown that where pasture has been replaced by radiata pine forest, there was a reduction in annual surface water yields of 30-81%.

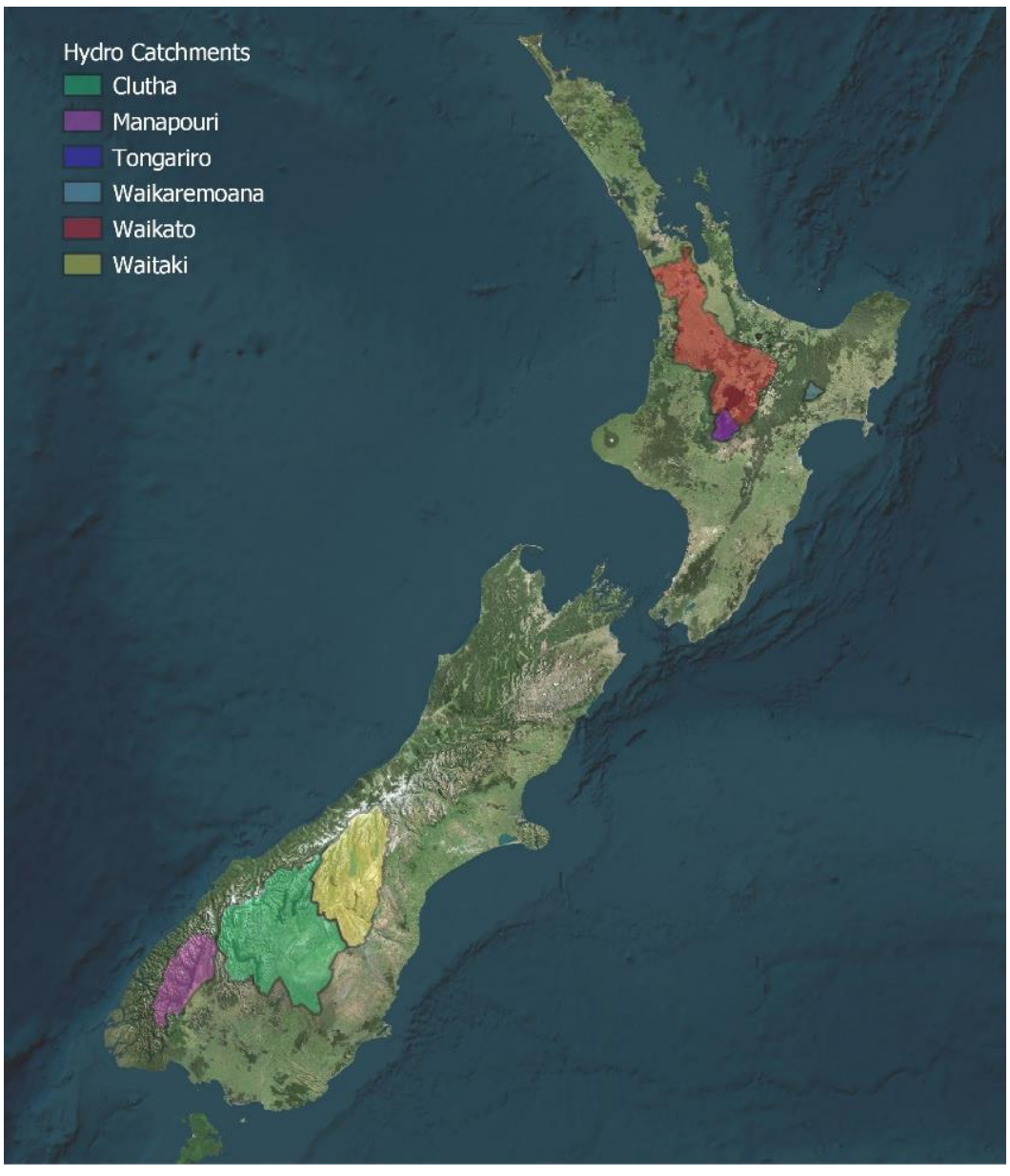
5.2.1 Hydro impacts

The spread of wilding conifers in hydro lake catchments can reduce water yields and therefore the electricity generating capacity of our hydro dams. This is a substantial economic cost. Additionally, it is worth noting that a reduction in the generating capacity of our hydro dams without an equal reduction in electricity demand, would see that demand met by alternative electricity generators. This would most likely be from non-renewable sources in the short term, gradually being replaced by renewable sources as New Zealand plans to move to 100 per cent renewable energy ('Labour Promises 100% Renewable Electricity Generation by 2030', 2020).

5.2.1.1 Water yield loss in hydro catchments

The impact of wilding conifer spread on hydro catchments was determined by combining Landcare Research analysis on the reduction in water yield attributable to wilding conifer spread, with a geospatial analysis of the catchments of hydro power generators. Catchments are determined using NIWA's River Environment Classification dataset, which includes all water segments in the country and their up and downstream relationships to each other. Catchments are determined by including all upstream nodes from selected hydro generation plants. A reduction in upstream water yields reduces the amount of water passing through a plant and therefore it's generating capacity. Figure 12 displays the extent of hydro catchments used in this analysis.

Figure 12: Hydro generator catchments



Source: Sapere analysis

5.2.1.2 Value of hydro generation

Consistent with the CBA undertaken for Phase two of the wilding conifer control programme, the hydro resource rent series produced by Statistics NZ is used to express the value of hydroelectricity catchments. This is broadly equivalent to the EBITR measure used to estimate productivity losses from land use changes and the value derived from hydroelectricity generation when calculating GDP.

Table 12: Resource rents for hydro catchments

Hydro catchment	Estimated annual value of hydro resource rent (2018, forecast to 2021)
Waitaki	$176,072,000
Waikato	$89,806,000
Manapouri	$118,911,000
Clutha	$91,768,000
Tongariro	$30,917,000
Waikaremoana	$7,826,000

Source: Statistics NZ

5.2.1.3 Hydro generation benefits by option

The benefits represent the additional water yield loss avoided by controlling the spread and densification of wilding conifers. The present value of controlling wilding conifer spread on hydro generation ranges from -$61 - $262 million over the next 50 years under the range of options assessed. The value of controlling wilding conifer spread in the Waitaki and Clutha catchments dominates results in the national model. This is consistent with expectations. The Waitaki catchment has the largest allocation of current resource rent of the catchments analysed and is vulnerable to wilding conifer spread due to the location of current infestation and land use choices within the catchment. This is clearly recognized by the NWCCP with the minimum option capturing the majority of the potential benefits of control within this catchment. The Clutha catchment has the third largest allocation of current resource rent and is similarly vulnerable to wilding conifer spread. Wilding conifer control under the status quo option is inadequate to prevent net hydroelectricity disbenefits from occurring. From the perspective of the Otago regional council, 97% of the Clutha catchment, and 12% of the Waitaki catchment are within the region, leading to large benefits derived from hydro generation in this area.

Table 13: PV of hydroelectricity benefits over 50 years ($ millions)

Hydro catchment	Status quo	Minimum	Intermediate	Maximum
Waitaki	$5.46	$32.23	$32.23	$32.23
Manapouri	-$0.32	-$0.28	-$0.22	-$0.22
Clutha	-$66.43	$39.15	$143.50	$143.50
Total benefits	**$61.30**	**$71.09**	**$175.51**	**$175.51**

Source: Sapere Analysis

5.2.2 Irrigation impacts

The spread of wilding conifers upstream from irrigated land can reduce water yields and the value derived from these irrigation systems.

Consistent with the previous CBA, the value of irrigation is determined at the regional level, extrapolating forward a 2014 *Value of Irrigation* study (NZIER & AgFirst Consultants NZ Ltd, 2014) to determine the value per hectare of irrigated land. This is then adjusted for the increase in irrigated land using an irrigated land area geospatial dataset created by Aqualinc Research Limited and adapted by Statistics NZ and the Ministry for the Environment. The estimated value obtained from irrigation for non-forestry activities is displayed in Table 14.

The regional value of irrigation for Otago is $26.4 million which includes 94,073 hectares of irrigated productive, non-forestry land.

Table 14: Value received from non-forestry irrigated land

Region	Regional value of irrigation (2022)	Irrigated hectares of productive, non-forestry land (2020)
Otago	$264,400,000	94,073

Source: Aqualinc Research, Ministry for the Environment, Statistics NZ, NZIER

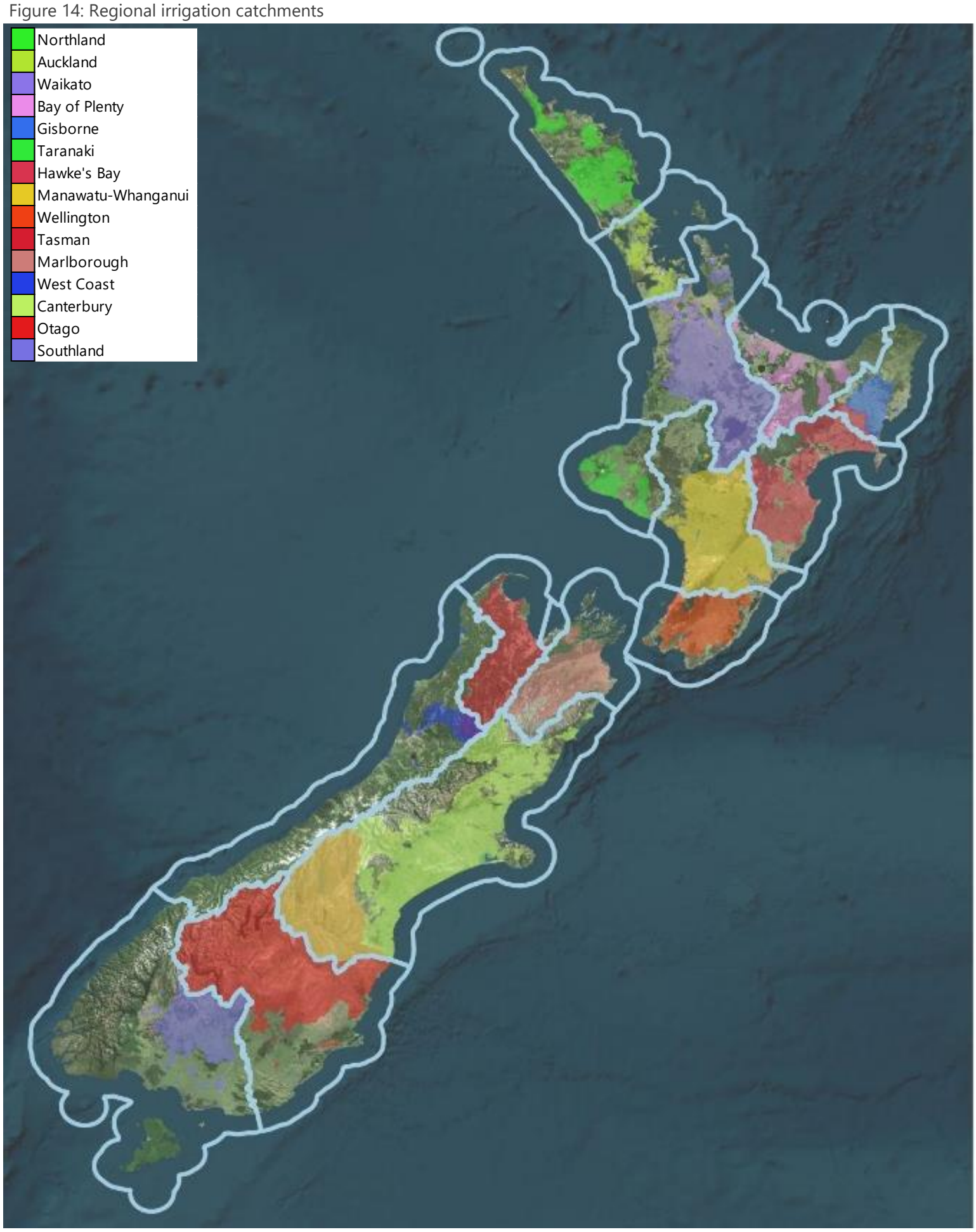
Irrigation values are highest in Canterbury, Otago and Marlborough. These areas are also at risk of wilding infestation. Canterbury and Otago in particular, are predicted to have large areas of dense infestation under the Status quo option.

Similar to the methodology used to determine hydro generation catchments, the water yield reduction from wilding conifer spread was determined using a combination of an irrigated land area geospatial dataset created by Aqualinc Research Limited, and NIWA's River Environment Classification dataset. A map of irrigated land (Figure 13) and their corresponding upstream catchments (Figure 14) are shown below. Some regional catchments overlap providing additional value from controlling spread in these areas. Notably, the orange shaded area in South Canterbury where the Canterbury catchment overlaps with the Otago catchment and the dark purple shaded area at the top of the West Coast where the West Coast and Tasman catchments overlap. Additionally, there is a small amount of irrigation value captured in Southland from controlling wilding pines in Otago.

Figure 13: Irrigated land areas, 2020

Source: Aqualinc Research Limited

Figure 14: Regional irrigation catchments



Source: Sapere analysis using Aqualinc Research Limited and NIWA's River Environment Classification data

Under the status quo option, a significant reduction in water yields will occur across irrigation catchments as wilding conifers spread. The benefits displayed in Table 15 represent the water yield loss avoided by controlling the spread of wilding conifers. Management Units in the Otago region cover 69% of the Otago region's irrigation catchment with the remainder in Canterbury and Southland. 2% of Canterbury's irrigation catchment, and 11% of Southland's is also covered.

The PV of controlling wilding conifer spread on irrigation ranges from $106.3 - $384.9 million over the next 50 years under the range of options assessed.

Table 15: PV of irrigation benefits over 50 years (millions)

Irrigation Catchment	Estimated proportion of catchment impacted	Status quo	Minimum	Intermediate	Maximum
Canterbury	2%	$0.2	$22.1	$25.7	$29.4
Otago	69%	$107.0	$193.0	$355.5	$355.5
Southland	11%	-$0.9	-$0.6	$0.0	$0.0
Total	-	**$106.3**	**$214.6**	**$381.2**	**$384.9**

Source: Sapere Analysis

5.3 Avoided cultural / biodiversity losses

Wilding conifer spread has a negative impact on cultural ecosystem services (biodiversity, recreation, aesthetic, and heritage values) as wilding conifers grow and outcompete natives for resources and quickly overtake natural landscapes. For cultural ecosystem services, a stated preference method can be used to monetise the values. Stated preference methods attempt to learn people's willingness to pay by directly asking them how much they value a certain environmental good or service. Careful survey design is key to the success of stated preference methods at eliciting willingness to pay information from participants. A recent willingness to pay study on wilding conifer control in New Zealand has been used as the basis for analysis on avoided cultural/biodiversity losses.

5.3.1 Monetised using non-market valuation (WTP) study

The non-market valuation study reveals the use and non-use values from wilding control such as scenery, recreation and the existence of ecosystems and species through Willingness to Pay (WTP) survey of households (Polyakov et al., 2021). We used this study's results through the value transfer methodology for monetisation of these benefits.

Polyakov's study looked at New Zealand households' willingness to pay for wilding conifer control using a choice experiment. Participants were presented with a choice set, which displayed different control scenarios across different regions combined with a dollar value displaying the cost to the participant's household under each option. The control scenarios were to allow wilding to spread, to contain infestation to its current extent, or to reduce the infestation.

The study controlled for:

- household incomes
- the region of the participant

- whether the participant had been hiking in the last five years
- the level of invasion within the participant's region
- whether they were financially impacted by Covid
- whether they lived in the city centre, suburbs or countryside.

By presenting choice sets with different control outcomes for different regions, the study also controlled for the distance from the participant's region to the invasion.

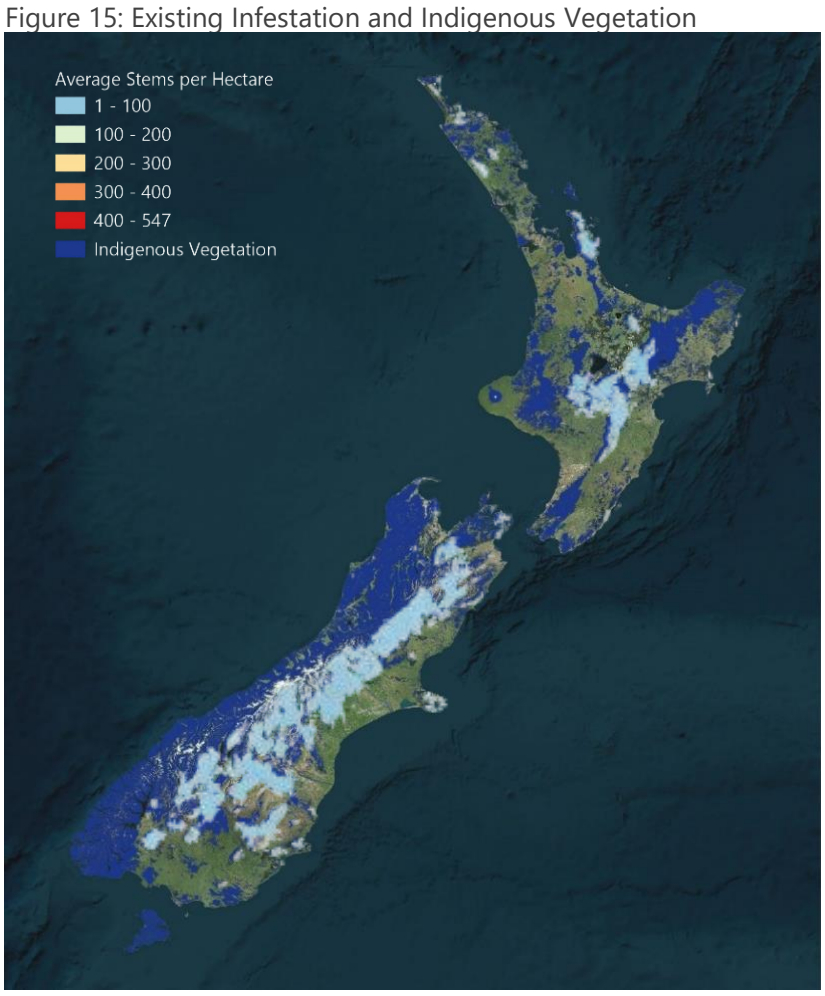
The average household is willing to pay $105 a year for five years to reduce the area infested with wilding conifers by 1,000 km^2 (Polyakov et al., 2021). This value diminishes the greater the areas controlled, the further away the household is from the control area and for low-income groups or those financially impacted by Covid-19. High income groups and rural households are willing to pay slightly more.

5.3.2 Area valued

The study only looked at control and invasion across areas of indigenous vegetation. This makes it useful for evaluating willingness to pay in the context of protecting and enhancing native biodiversity values.

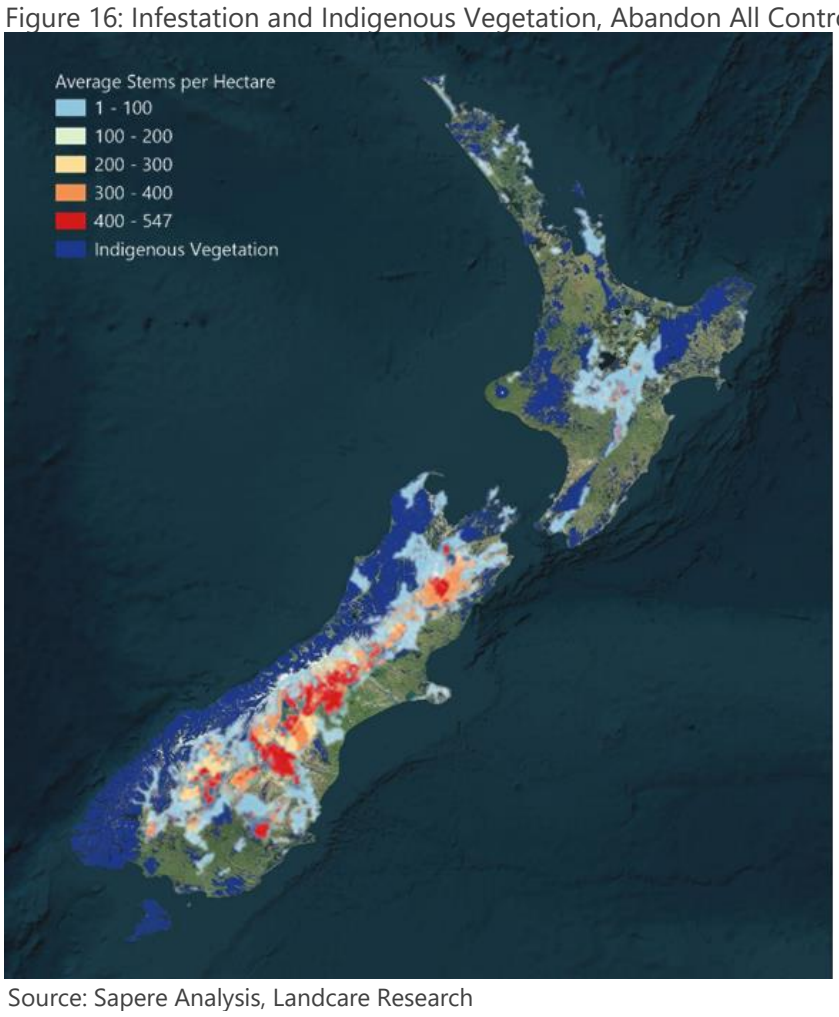
Polyakov selected landcover database classes 43 – 70 as 'indigenous vegetation'. The following figures show the current invasion overlaid on top of the areas considered indigenous vegetation and the invasion in year 50 under the different options. The purple shaded areas are indigenous vegetation with no wilding conifers present.

Figure 15: Existing Infestation and Indigenous Vegetation



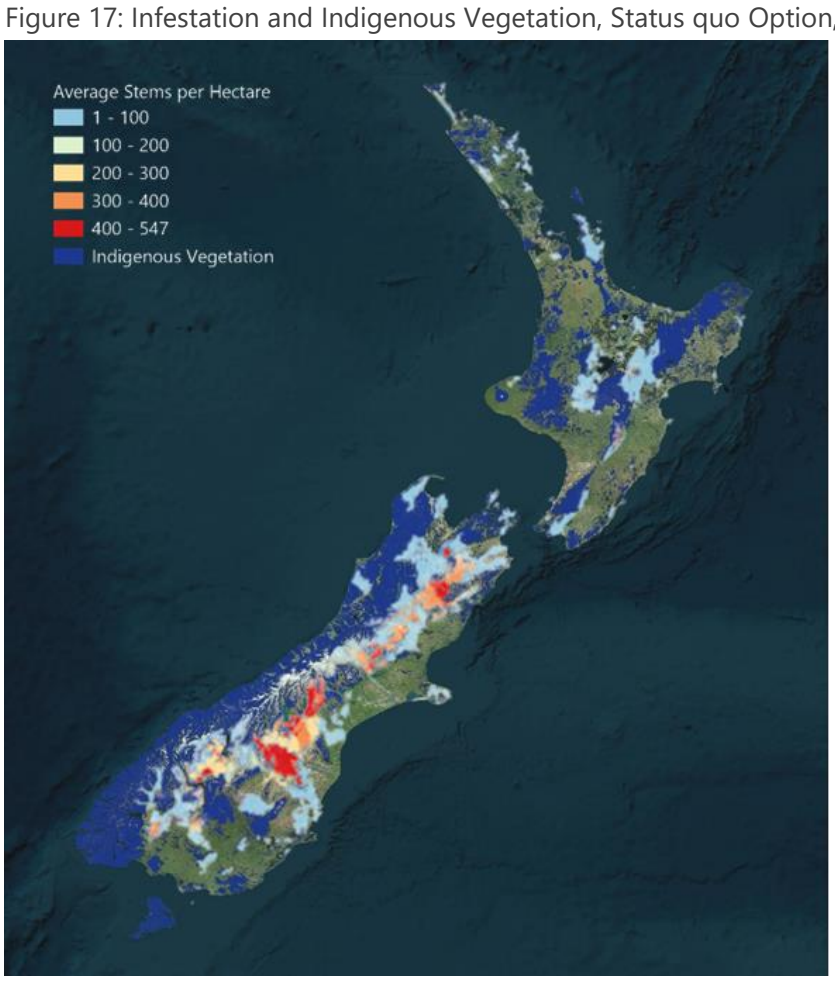
Source: Sapere Analysis, Landcare Research

Figure 16: Infestation and Indigenous Vegetation, Abandon All Control Activities, 2072



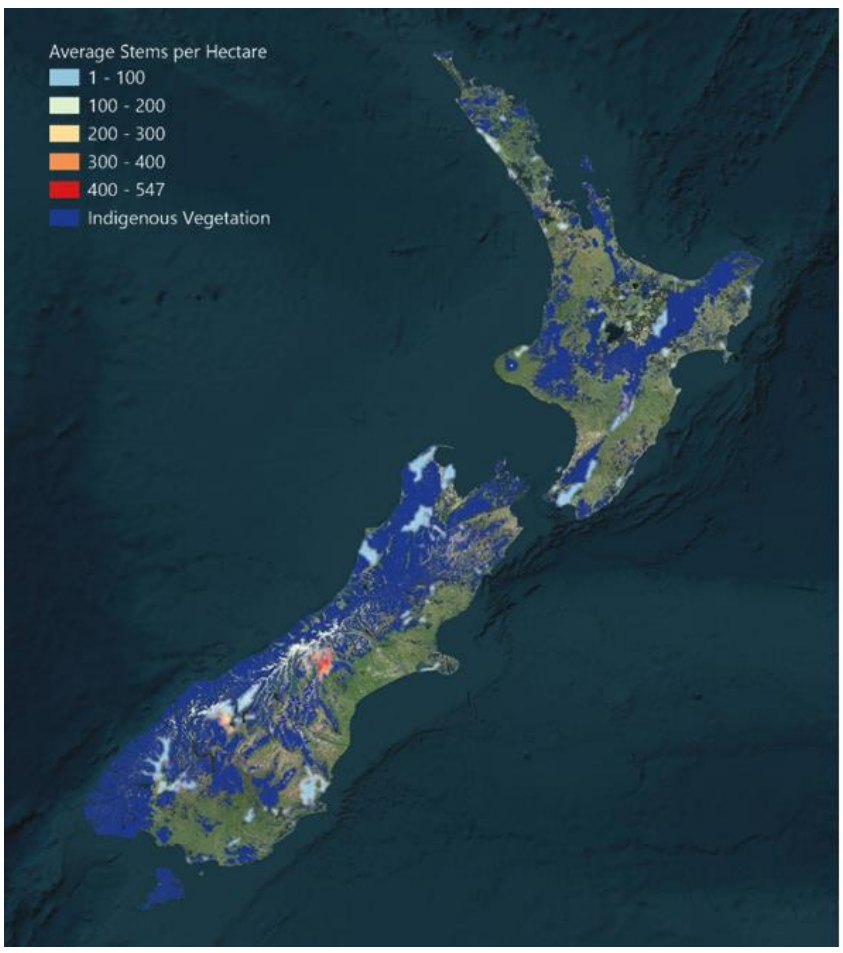
Source: Sapere Analysis, Landcare Research

Figure 17: Infestation and Indigenous Vegetation, Status quo Option, 2072



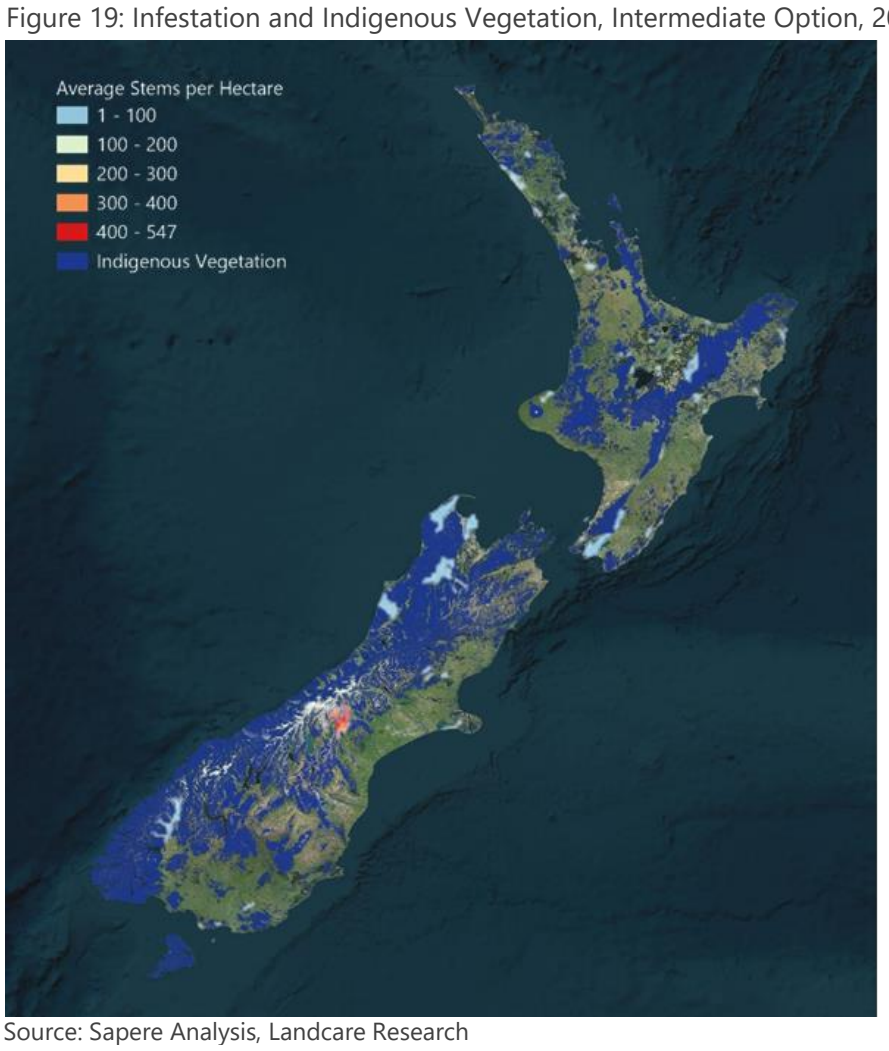
Source: Sapere Analysis, Landcare Research

Figure 18: Infestation and Indigenous Vegetation, Minimum Option, 2072



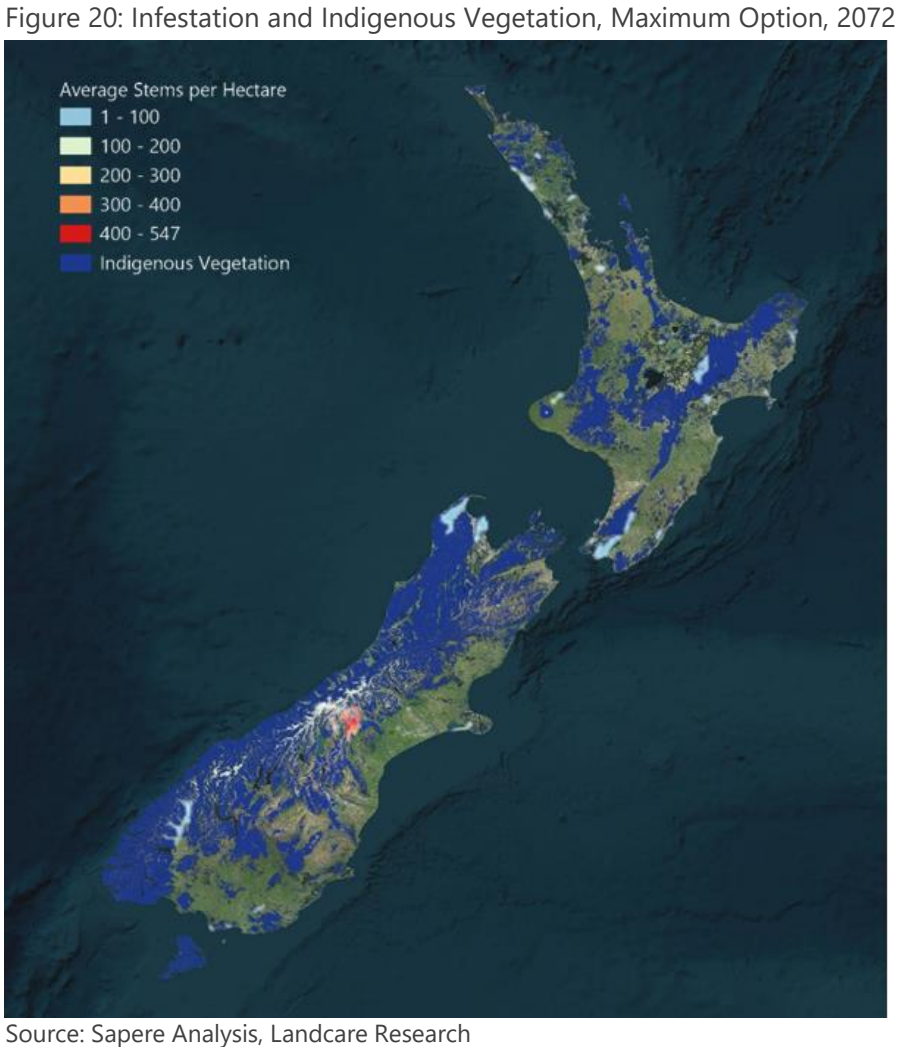
Source: Sapere Analysis, Landcare Research

Figure 19: Infestation and Indigenous Vegetation, Intermediate Option, 2072



Source: Sapere Analysis, Landcare Research

Figure 20: Infestation and Indigenous Vegetation, Maximum Option, 2072



Source: Sapere Analysis, Landcare Research

5.3.3 Values used per ha controlled

We use the logit model developed by Polyakov to estimate the total willingness to pay (each year for 5 years) for all households in New Zealand based on the areas controlled under the three options. This gives the following values:

Table 16: Value of cultural/biodiversity benefits based on WTP study ($ millions)

	Status quo	Minimum	Intermediate	Maximum
Willingness to pay by all NZ households each year for 5 years ($ millions)	$241	$469	$478	$478
Value per year ($ millions)	$31	$113	$115	$115
Present value over 50 years ($ millions)	$561	$2,063	$2,101	$2,101

Source: Sapere analysis

The total willingness to pay is each year for five years. This gives us the total non-market value for the use and non-use benefits arising from control of wilding conifers. We have assumed that cultural/biodiversity values are ongoing so the value of control per year is the total willingness to pay for 5 years spread across 50 years.

One limitation in using this study is that participants were not presented with a choice to remove wilding conifers completely. At most, an option to remove half of the existing infestation was presented. In addition, household's willingness to pay diminishes the greater the area controlled. As a result, in the national report we hit a ceiling at the minimum option and no additional value is generated under the intermediate or maximum option. This is because the hectares controlled under these options are greater than the scope of the WTP study. It would not be appropriate to extrapolate the model beyond its limits as this results in negative marginal willingness to pay values. This limitation meant that the benefits from avoiding cultural/biodiversity losses is understated. This problem is avoided when undertaking regional analysis however, and goes a long way to explaining the high BCRs found at the regional level.

5.4 Benefits from reduced wildfire risk and hazard

The likelihood of wildfires (fire risk) is determined by weather and a source of ignition, e.g. machinery, burn offs, rubbish fire. Fire behaviour (or fire hazard) is affected by the interaction between the topography of the land, fuel load (what is available to burn) and weather conditions.

The impact of wilding conifer spread on the cost of wildfires has not been quantified, but the commonly held view is that the establishment of wilding conifers increases fire risk and hazard. Wilding conifers typically replace grasslands which are associated with lower fire intensity and less damage to vegetation and property (V. Clifford et al., 2013).

Some control methods can also contribute to fire risk and hazard. Increases in fuel loads (either as dead standing or felled trees on the ground, or as more grass or scrub cover) will result in an increased chance of ignition, greater potential for fire spread and higher fire intensity. The length of

this increased flammability will depend on the amount of material left on the ground, the rate of decomposition, fuel moisture and other vegetation present (V. Clifford et al., 2013).

Wildfires fuelled by wilding conifers are rare, however, there are some notable examples, the 2008 Mt Cook wildfire covering 756 hectares was fuelled by dense stands of wilding pines (V. R. Clifford & Pearce, 2009), the Aoraki/Mt Cook fire in August-September 2020, which burnt through more than 3,100 ha of wilding forest and tussock on private land, and 2020 Lake Ohau fire covering 5043 hectares (Fire and Emergency New Zealand, 2021), which destroyed or damaged 53 houses.

In researching the potential costs avoided by controlling wilding conifers we spoke with staff at Fire and Emergency NZ (FENZ) and Scion Research. The impact of wilding conifers on wildfire costs is an area requiring further research but the costs would depend on specific and localised factors such as the control method, the characteristics of the area controlled, potential ignition sources and the presence of fire breaks. The resources committed to suppressing fires would also be weighed against the potential for damage, i.e. more would be put into suppressing a fire close to residential areas and sites of cultural significance. As a result, we have opted for a simple but defensible approach to valuing the benefits of control on wildfire costs.

For this CBA we assume the impact of wilding conifer control reduces the cost of wildfires by controlling trees before they spread and grow, preventing them from becoming a major fuel source. We do not assume that wildfire risk is removed entirely but as a result of control we assume benefits from a reduction in future suppression costs and associated damages.

5.4.1 Value of avoided costs

The value of avoided suppression costs and damages is based on an economic analysis of the cost of wildfires (BERL, 2009), inflation adjusted to 2021 dollars. Using this we get the following values:

Figure 21: Avoided wildfire costs

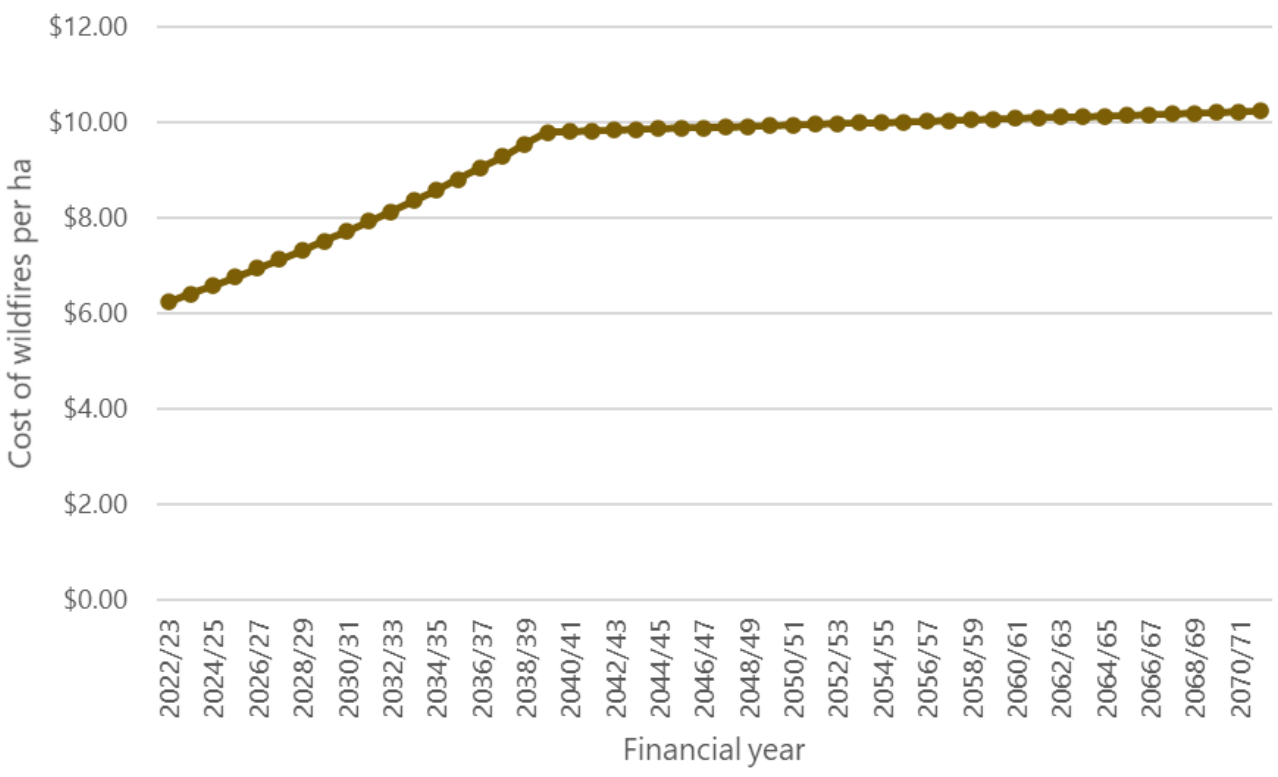
Component	Cost per ha per year
Suppression costs	$2.13
Cost of damages	$4.11
Benefit per hectare controlled per annum	$6.24

Source: BERL

5.4.1.1 The value is adjusted to reflect the increased risk of wildfires because of climate change

Climate change is also expected to have an impact on wildfires with an increase in the frequency and severity of wildfire events. Modelling shows a 70 per cent increase in very high and extreme fire risk days by 2040, increasing to 82 per cent by 2090 (Watt et al., 2019). The benefits per hectare controlled is adjusted to account for the expected change in very high and extreme fire risk days due to climate change as shown in Figure 22.

Figure 22 Benefits per hectare controlled adjusted for increased very high and extreme fire risk days due to climate change



Source: Sapere analysis

5.4.2 The benefits from avoided wildfire costs

We assume that all land controlled, plus the avoided spread, contributes to the avoided cost of wildfires. Applying the cost of fire to this area we derive the following benefits over 50 years from control activity on wildfire costs.

Figure 23: Present value of fire benefits by investment option ($ millions)

Component	Status quo	Minimum	Intermediate	Maximum
Avoided spending on wildfire suppression costs	$1.8	$26.7	$28.5	$28.5
Avoided spending on damages caused by wildfires	$3.5	$51.2	$55.0	$55.0
Proportion of costs caused by climate change	52.1%	50.0%	50.1%	50.1%
Total benefits (PV)	$5.3	$39.0	$83.5	$83.5

Source: Sapere analysis

The benefits from reduced fire risk range from $5.3 million over 50 years under the status quo option to $83.5 million under the maximum option. The impact of climate change risk is significant, accounting for fifty to fifty-two percent, or $2.7 - $41.8 million of the avoided costs.

5.5 Māori cultural values (qualitative)

The term cultural value has wide meaning and can include historic and aesthetic value of sites or landscapes, recreation, indigenous biodiversity, ancestral and spiritual values, people's sense of place and identity, kaitiakitanga (guardianship), and bequest value for future generations. This list is not exhaustive, but it highlights how difficult it is to simply define cultural value. In their report on non-market impacts of wilding conifers on cultural values Greenaway et al. use the definition:

> the collective norms and expectations that influence how ecosystems accrue meaning and significance to people (Greenaway et al., 2015)

For Māori, there are clear links between healthy ecosystems and people's cultural and spiritual well-being (Harmsworth & Awatere, 2013). The depth of Māori cultural values is well articulated in the introduction to Indigenous Māori Knowledge and Perspectives of Ecosystems:

> Indigenous Māori have an intricate, holistic and interconnected relationship with the natural world and its resources, with a rich knowledge base – mātauranga Māori – developed over thousands of years and dating back to life in Polynesia and trans-Pacific migrations. This ancestral traditional bond links indigenous Māori to ecosystems and governs how they see and understand ecosystems and ecosystem services (Harmsworth & Awatere, 2013).

In effect, some Māori values are deep rooted and accrue indefinitely so are not able to be adequately monetised in this CBA. Protection of waterway health (Te Mana o te Wai), native landscapes (whenua

ora) are also important in Te Ao Māori and at Iwi level, sustainable productive land use will also be of importance of many Iwi and Hapū. Some of these values have been included, through the monetised benefits of productive land use and water yields, fire risk and in biodiversity values. In their willingness to pay study, Polyakov et al estimate non-market values such as existence values of ecosystems and species resulting from wilding conifer control.

In the 2011 Wilding Conifer Status report it is noted that the impact on Māori cultural values has been low but could become significant should wilding spread reach a tipping point. Impacts described in this report included the loss of culturally significant sites and impact on water flows and health of waterways (Froude, 2011).

Cultural assessment models can be used to provide a cultural lens to policy and decision making on ecosystem projects. The Wilding Conifer Management Programme also recognises Māori cultural values in its activities. Iwi-involvement are involved in a number of projects and all conifer control programme applications ask for info on the Māori cultural values and to note where there is support or involvement of local Iwi or Hapū.

Qualitatively, the following Māori values can provide a basis for what is valued (Harmsworth & Awatere, 2013).

- Rangatiratanga: The right to exercise authority and self-determination within one's own iwi and/or hapū realm.
- Kaitiakitanga: Guardianship, stewardship, trusteeship, trustee. Kaitiakitanga is an important Māori value that bestows an obligation of stewardship on Māori to care for the environment.
- Whanaungatanga: Relationship, kinship, sense of family connection – a relationship through shared experiences and working together, which provides people with a sense of belonging.
- Wairuatanga: The immutable spiritual connection between people and their environments.
- Mātauranga: Māori/mana whenua knowledge and understanding.

6. Area for further research

Post-completion of this CBA, discussion with stakeholder groups revealed areas of further research that could complement this analysis.

Economic value from harvesting wildings: some value is generated from harvesting wilding logs and biomass. Incorporating this effect would reduce the net costs of clearing wildings in areas where it is practical, further increasing the BCR.

Slope stability, flooding intensity and root system aquifer retention impacts: clearing trees has environmental impacts regardless of whether the tree is a 'pest' or not. Wilding conifers do provide some environmental benefits which would be lost if land is transitioned to another, non-forestry use. Monetising and incorporating these benefits of wilding pines would decrease the net benefits from clearing wildings in some areas.

Wider biodiversity impacts: as a function of limitations discussed in the body of the report, as a measure of biodiversity, this report has only considered the impact of wilding conifers on areas of native vegetation.

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Additional Regional Investment for Wilding Conifer Management in Otago

Simplified Business Case
Prepared for Otago Regional Council

19 September 2024

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Executive Summary

Wilding conifers (also known as wilding pines) are a serious threat to biodiversity, social, cultural and economic values in the Otago region and nationwide. The importance of this threat is recognised in Otago Regional Council's strategic documents, such as the Otago Regional Wilding Conifer Strategy 2023-2029, and the Otago Pest Management Plan 2019-2029.

Since 2016, significant effort and funding has been invested in wilding conifer control through the National Wilding Conifer Control Programme, and in 2020 a $100 million funding boost through the Jobs for Nature programme fast-tracked the expansion of the control programme nationwide. Now, this funding source is coming to an end and ongoing resourcing is set to be reduced to approximately $10 million per annum nationally, of which approximately $1.07 million per annum is proposed to be allocated to management units within the Otago Region (i.e. $10.7 million over 10 years).

At this lower rate of funding, the current control programme will be slashed to cover less than 50% of the known infested area in Otago, compared to 89% currently, which risks losing much of the benefit gained by the control programme to date and a worsening of the negative effects of this invasive species.

This simplified business case puts forward an argument for increased investment into ongoing wilding conifer control within the Otago region. We assess a range of investment options in terms of feasibility, cost, benefits and risks.

We identify the preferred option to be the Intermediate 'extend the investment' option which would control 99.9% of the known infestation by expanding management activity to include a further five priority management units in the Otago region. The cost (including in-kind contributions) is estimated at approximately $66 million to 2033/34 over 10 years – which is $44 million more than is currently committed over the same period. Delays to funding will result in additional cost, because without adequate spending to maintain cleared areas re-infestation is rapid.

We show that the 'extend the investment' option is supported by a compelling case for change (the 'strategic case') and represents good value for public money (the 'economic case'). A cost benefit analysis predicts that implementing the 'extend the investment' option would avoid losses of $2.8 billion over 50 years from lost primary production, reduced water yields, loss of biodiversity and cultural values and increased fire spread and damages. These losses are enormous compared against the cost savings of $19 million by scaling back the programme.

CONTENTS

Appendix

Detailed economic case

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Figures

Tables

1.0 Introduction

The purpose of this business case is to identify and recommend a preferred option to address funding shortfalls for ongoing wilding conifer management in the Otago Region.

This simplified business case:

- Outlines how the proposed investment fits within council's strategic context and strategic intentions.
- Confirms the need for investment and makes the case for change.
- Identifies and considers the feasibility, costs, benefits and risks of a range of potential options.
- Determines the preferred option which optimises public value (economic analyses and scenarios presented in this report have been reproduced and updated from cost-benefit analyses originally undertaken by Sapere (2022, 2023)).

This simplified business case in part follows the Treasury Better Business Cases guidance; it is organised around case models, designed to systematically ascertain that the investment proposal:

- Optimises value-for-money – the 'economic case'.
- Is supported by a compelling case for change – the 'strategic case'.
- Is financially beneficial – the 'financial case'.

The commercial and management cases have been woven into the case for additional funding at a high level.

Estimated costings to implement the preferred option over 10 years are provided.

2.0 Background

Wilding conifers (also known as wilding pines) are introduced conifer trees which have self-seeded and are growing where they are not wanted — they are the wrong tree in the wrong place. It is estimated that wilding conifers are spreading at around 5% annually. Failure to control their spread at an early stage can quickly lead to increasing numbers of trees taking hold, and the costs of control escalating exponentially.

Otago's landscapes are highly vulnerable to wilding conifer invasion, particularly the iconic high country and tussock grasslands. Currently, the known infested area in Otago totals 481,514 hectares (Sapere 2023). These invasive trees seriously impact on a range of values, including biodiversity, cultural, social, and economic.

In 2020, $100 million was committed to the National Wilding Conifer Control Programme (NWCCP) over four years under the Jobs for Nature programme, resulting in a large expansion of control efforts across the country. With this funding source coming to an end in June 2024, NWCCP funding has been scaled back to $10 million per annum nationwide which is insufficient

to maintain the current level of management. Without additional investment the area in Otago where wilding conifers are controlled will be reduced to less than 50% of the known infested area (compared to 89% currently). As a result, wilding conifers will re-infest areas that have previously been subject to management and continue to spread.

Figure 1 below shows the estimated increase across Otago in hectares infested by wilding conifers over 20 years if the present management regime continues.

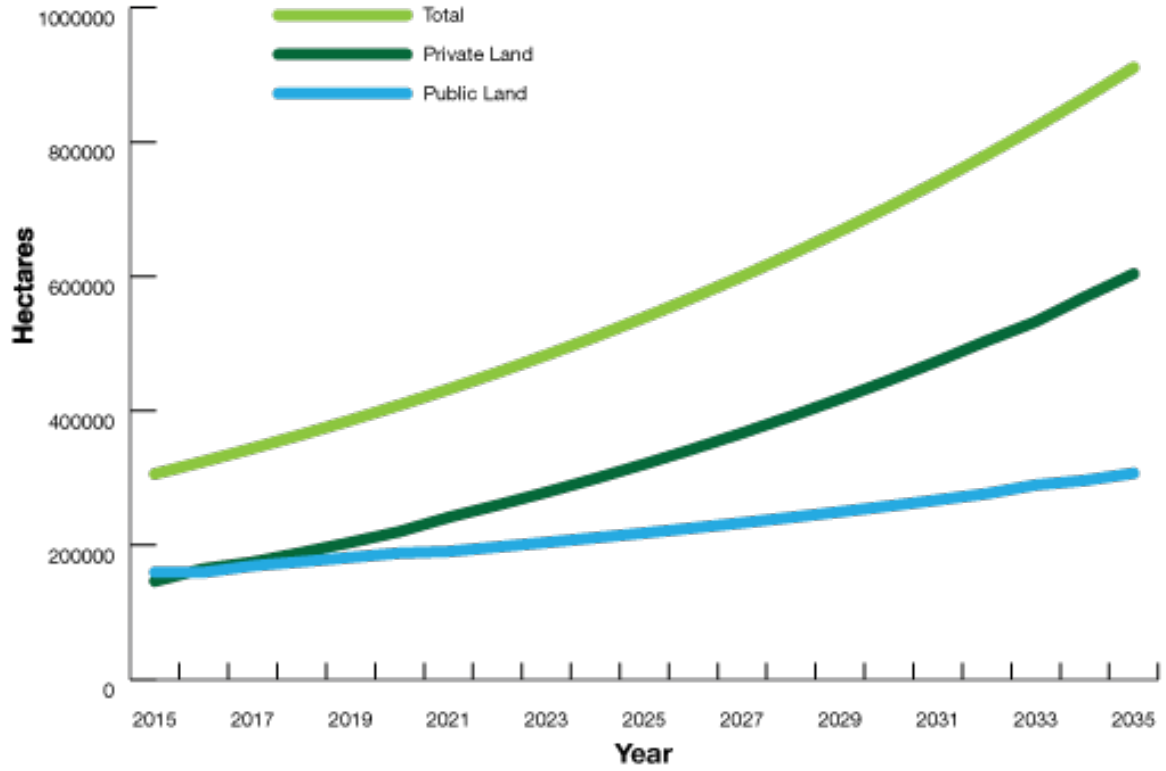

Figure 1: Estimated annual increase of wilding conifers in Otago from 2015-2035. Source: https://www.orc.govt.nz/managing-our-environment/pest-hub/plants/wilding-conifers

2.1 ORCs role in Wilding Conifer Management

The Otago region is divided into 21 Management Units (geographical areas) for the purposes of controlling wilding conifers (Figure 2). In 2024/25 12 of those Management Units are active, and 9 are inactive[1]. Funding from NWCCP through Jobs for Nature was allocated to the Management Units where wildings are most prone to spreading. Control work in each Management Unit is undertaken through a collaborative partnership between the Otago Regional Council, Department of Conservation, Whakatipu Wilding Conifer Control Group (WCG) and Central Otago Wilding Conifer Control Group (CWG), with project managers overseeing landowner consultation, funding agreements and the contracting workforce delivering the ground or aerial operations.

ORC provide contract management services for wilding conifer control programmes and manage national funding. Staff check compliance with Regional Pest Management Plan rules

[1] Note that Sapere's (2023) analysis is based on 14 active management units in the Otago region. This total includes two short-term community projects in Dunedin and Waitaki that are no longer active.

and support wilding conifer education and advocacy work. ORC provide funding to community organisations and play a key role in seeking funding from central government, ratepayers and stakeholders.

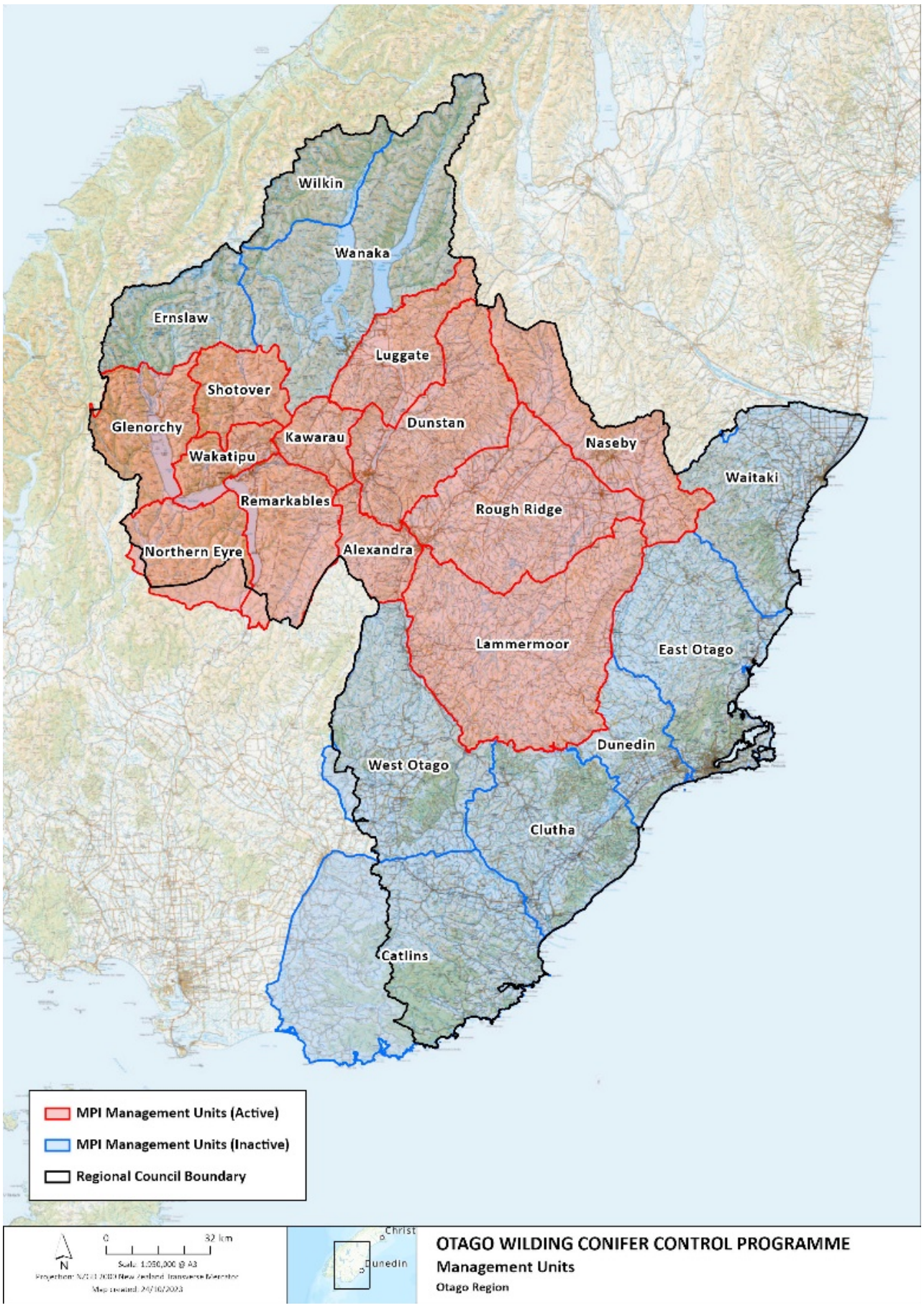

Figure 2: Map of Management units in Otago region

3.0 Economic Case - Review of Cost-Benefit Analysis

This section presents a summarised version of the Economic Case in which a preferred option to address funding shortfalls for ongoing wilding conifer management in the Otago Region is identified. The detailed Economic Case is provided in Appendix 1.

Sapere (2023) performed a Cost-Benefit Analysis (CBA) to assess the economic impact of additional investment in wilding conifer control in the Otago region (this Business Case is intended to be read in conjunction with that document). The CBA considered costs and benefits over a 50-year timeframe for four different management scenarios:

- Status Quo "losing the investment" – (control 49.6% of the known infestation[2]) - scale back control activities to four management units within the Otago Region.
- Minimum "protect the investment" (control 89.4% of the known infestation) – continue to support existing control activity across 14 management units[3].
- Intermediate "extend the investment" (control 99.9% of the known infestation) – expanding the activity to include a further five priority management units.
- Maximum "national control" (control 99.9% of the known infestation) – the intermediate option plus slightly higher funding in some management units.

In addition to Sapere's CBA, we assessed the four management scenarios against key investment objectives from the NZ Wilding Conifer Management Strategy 2015 –2030 (Section 4.5), and critical success factors (CSFs) from the Otago Regional Wilding Conifer Strategy 2023 – 2029 (Section 4.6). These analyses are detailed in Appendix 1 and summarised in Table 1.

Based on these analyses, we found that the preferred management scenario overall is Option 3 (Intermediate - Extend the investment) for the following reasons:

- Option 3 and Option 4 have the equal highest number of investment criteria and CSFs met, and the equal highest net present value (NPV).[4]
- Option 4 has a substantially lower benefit:cost ratio (BCR) than Option 3 and is therefore rejected.
- Option 2 has the highest BCR value at 96, but Option 3 also has a very good BCR of 93.
- Option 3 has a higher NPV than Option 2.[4]
- Option 3 meets more investment criteria and CSFs than Option 2.

[2] Known infestation estimate is based on a 2021 dataset from LINZ. Sapere (2022) updated this dataset using a modelling process. Further work to quantify actual current infestation levels in Otago is recommended.

[3] Note that while Sapere's (2023) analysis is based on 14 active management units in the Otago region, this total includes two short-term community projects in Dunedin and Waitaki that are no longer active in 2024/25.

[4] A higher NPV indicates that the additional spend under this option is more than the required return on capital and should be pursued.

The remainder of this business case therefore focuses on Option 3 (Intermediate - Extend the investment).

Table 1: Summary of cost benefit analysis for four management scenarios and assessment against investment and success criteria. The preferred management scenario, based on these analyses, is highlighted green.

	Benefits: Cost Ratio (Sapere 2023)	**Net Present Value (Sapere 2023)**[5]	**Investment criteria and Critical Success Factors met**[6]	**Overall**
Option 1: Status quo - lose the investment	42	$820M	0/10	Rejected
Option 2: Minimum - protect the investment	96	$3.2B	8/10	Possible
Option 3: Intermediate - extend the investment	93	$3.6B	9/10	Preferred
Option 4: Maximum - national control	86	$3.6B	9/10	Rejected

4.0 Strategic Case – Making the Case for Change

The Strategic Case summarises the strategic context for the investment proposal and makes a robust case for change. It demonstrates alignment of the proposed investment with wider national, and regional strategies, objectives, priorities and goals, and other multi-agency projects.

In 2016 the National Wilding Conifer Control Programme was established to ensure a collaborative, coordinated and effective approach to national wilding management. The delivery of the programme is led by Biosecurity New Zealand in partnership with regional councils and unitary authorities who coordinate the activities regionally and support a wide range of stakeholder groups and community groups. The Programme is informed by the New Zealand Wilding Conifer Management Strategy 2015-2030 and is supported by central government funding.

[5] Sapere (2023's) analysis was calculated in 2021 NZ dollars – the values shown here have been adjusted to account for inflation (using Consumer Price Index Sep 2023).

[6] See Appendix 1 for further information

4.1 Alignment to Strategic Intentions

The key driver for additional investment is to minimise the adverse effects of wilding conifers within the Otago Region. The Otago Regional Policy Statement 2021 – Partially Operative (RPS) sets the high-level strategic policy framework for the region. Objective 5.4 of that Statement seeks that the adverse effects of using and enjoying Otago's natural and physical resources are minimised. Policy 5.4.5 specifically references pest plants and animals:

"Policy 5.4.5 Pest plants and animals

Control the adverse effects of pest species, prevent their introduction, reduce their spread and enable the removal and destruction of material for biosecurity purposes, to safeguard all of the following:

a) The viability of indigenous species and habitats for indigenous species;

b) Ecosystem services that support economic activities;

c) Water quality and water quantity;

d) Soil quality;

e) Human and animal health;

f) Recreation values;

g) Landscapes, seascapes and natural character;

h) Primary production."

The Regional Policy Statement also requires the development and implementation of a Pest Management Strategy for the control of pest species, including those which:

"Have propensity for spread, including wilding trees."

Methods that Councils can use give effect to the above policies under the Regional Policy Statement include:

"Fund community groups and projects with aims that complement RPS objectives and policies.

*Facilitate the control of pest species, **including wilding pines**, particularly when it contributes to the protection or restoration of:*

a. Outstanding or highly valued landscapes;

b. Indigenous species."

Sitting underneath the Regional Policy Statement is the Otago Regional Pest Management Plan 2019-2029 (RPMP) which contains the following objective:

"Over the duration of the Plan (2019-2029), progressively contain and reduce the geographic extent of wilding conifers within the Otago Region to minimise adverse effects on economic well-being and the environment."

The RPMP also contains rules relating to the management of wilding conifers and stipulates that measures drawn from the suite of activities listed under requirement to act, collaboration,

council inspection, service delivery, advocacy and education may be used by ORC to achieve the plan's objective.

In 2022, ORC developed a Regional Wilding Conifer Strategy to work towards achieving the objective in the RPMP.

> *"Objective 6.3.4 Over the duration of the Plan (2019-2029), progressively contain and reduce the geographic extent of wilding conifers within the Otago Region to minimise adverse effects on economic well-being and the environment".*

Additional investment will enable council to continue to deliver on the regional Wilding Conifer Strategy. In addition, it would also support the National New Zealand Wilding Conifer Management Strategy - a national strategy (developed with support from ORC) which sets out strategic objectives and outcomes that this investment would allow council to continue working towards.

Additional investment will enable the continued delivery of wilding conifer control across multiple management units throughout the region, which would have expected "use benefits for:

- Primary production / productive land use
- Water yields for hydro generation and irrigation.
- Reduced wildfire spread and damage risk.
- Protecting iconic landscapes for recreation and aesthetic value

Additional 'non-use' benefits would also include:

- Avoiding biodiversity losses – including preventing soil legacies
- Protecting Māori cultural values e.g. protecting sites of significance to Mana Whenua, and Māori land, from the impacts of introduced pest species.

4.2 The Case for Change

Additional investment in wilding conifer management within the region is needed to prevent significant financial and environmental losses as shown in the Otago Wilding Conifer Cost Benefit Analysis (Sapere 2023, Appendix 1).

Maintaining the gains and continuing to prevent the spread of wilding conifers is one of the most important actions agencies, industry, community groups and landowners can take to protect the region's unique landscapes, primary industry, tourism, and the economy from the impact of wilding conifers.

Over a period of five years from July 2016 to June 2021, $37 million was invested in the National Wilding Conifer Control Programme (NWCCP). Additional investment was made in Budget 2020 with $100 million committed over four years to the NWCCP under the Jobs for Nature programme.

Otago Regional Council has received approximately $18 million of the $137 million from the NWCCP since 2016 for the control of wilding conifers in the Otago region (Table 2).

*Table 2: Region funding received from MPI, DOC International Visitor Levy (one-off payment), and Community groups / landowners (other) *estimated.*

Year	MPI	DOC (IVL)	Other	Grand Total
2016/2017	1,117,844.00		691,538.00	1,809,382.00
2017/2018	1,174,504.00		622,798.00	1,797,302.00
2018/2019	707,381.75		563,060.76	1,270,442.51
2019/2020	1,642,017.48		324,249.51	1,966,266.99
2020/2021	5,705,518.89		617,441.85	6,322,960.74
2021/2022	3,943,455.00		549,711.55	4,493,166.55
2022/2023	2,852,458.00		584,088.29	3,436,546.29
2023/2024	1,042,422.00	877,100.00	*358,091.50	2,277,613.50
Grand Total	**18,185,601.12**	**877,100.00**	**4,310,976.46**	**23,373,680.58**

Jobs for Nature funding came to an end on 30 June 2024 with ongoing national funding of $10 million per annum committed to the NWCCP. This level of funding would be insufficient for the programme to achieve control of wilding conifers on a national scale, and control activity would be substantially scaled back with some management units abandoned entirely or in part.

Under this scenario, 42 percent of the known national infestation would be actively managed while spread and regrowth would continue in the (partially or entirely) abandoned management units (MUs). For Otago, control activity is scaled back from 89 percent of known infestation to 50 percent over four management units (Table 3). Under this reduced funding programme, ORC would receive approximately $1.07 million annually over the next three years, down from $2.8 million in 2022/23.

Table 3: Control (ha) by region for each option assessed (Source: Sapere 2023).

Region	Infestation (ha)	Hectares controlled for each option			
		Status quo	Minimum	Intermediate	Maximum
Otago	481,514	239,090	430,500	480,894	480,894
Per cent of known infestation controlled		49.65%	89.41%	99.86%	99.86%

4.2.1 Existing Arrangement

Under a "*status quo"* option only 49.7% of the known infestation in Otago would continue to be controlled, severely limiting the spatial scale over which the investment objectives can be achieved. There would be a substantial loss of benefits as lands that are currently under management are re-infested by wilding pines. The Otago Wilding Conifer CBA estimates the lost benefits to be equal to $2.8 billion over 50 years (relative to the 'Intermediate' option) – far in excess of the estimated cost savings of $19 million achieved by scaling back the programme.

4.2.2 Business Needs

To avoid $2.8 billion in lost benefits and maintain control over 99.9% of the known infested area, funding needs to be maintained at approximately $66 million total until 2033/34.

4.2.3 Outcomes Sought

The investment objectives, as outlined in section 4.5, directly describe the outcomes sought by implementing the 'Intermediate' option for wilding pine control in Otago. The ultimate vision is the restoration and maintenance of iconic Otago landscapes for the protection of biodiversity, productive land, water yields, and cultural and amenity values.

4.3 Stakeholders and Special Interest Groups

Additional investment will enable council to support a range of stakeholders to manage wilding conifers and reduce their impacts. Key stakeholders are identified in Table 4.

Amongst the key stakeholders are four special interest groups: Whakatipu Wilding Conifer Control Group; Central Otago Wilding Conifer Control Group; Upper Clutha Wilding Tree Group, and the Wilding Pine Network.

Whakatipu Wilding Conifer Control Group Inc (WCG) is a community, not-for-profit organisation created in April 2009. They are focused on protecting biodiversity and the remarkable landscape of the Whakatipu for the benefit of residents, users, tourists and particularly, future generations. The WCG aim is to control wilding conifers. Queenstown is renowned worldwide for its stunning and iconic landscapes, but they are under threat from wilding conifers. Wilding conifers threaten and replace tussock, and one particular wilding conifer species, Douglas fir, threatens to replace native beech forest.

Central Otago Wilding Conifer Control Group Inc (CWG) is an independent community not-for-profit organisation formed in 2013 in response to mounting concerns about the impact and spread of wilding conifers on the Central Otago landscape. CWG aims to protect the Central Otago landscape from the spread of wilding conifers and associated consequences. They work with landowners to control and remove wilding conifers from the landscape. They are funded by contributions from ORC, CODC and LINZ.

The Upper Clutha Wilding Tree Group is a community-led, non-profit organisation that supports the conservation and preservation of native ecosystems including the tussock grasslands and wider landscapes within the Wānaka and Hāwea region. The group formed in late 2022 in response to the ever-increasing threat posed by wilding trees spreading in the region. They are currently funded by contributions from ORC, QLDC and private donations.

Wilding Pine Network is an advocacy and advisory group comprised of organisations and individuals involved in wilding conifer / wilding pine management and research. The Wilding Pine Network advises the National Wilding Conifer Control Programme, led by Biosecurity New Zealand / MPI, on good practice and engagement with communities. They additionally provide advice and support to iwi, community groups, trusts, and anyone who needs help.

Table 4: Key stakeholders in Otago Wilding Conifer management

Key Stakeholders	Roles	Interest
Central and local Government Department of Conservation Ministry of Primary Industries Otago Regional Council District Councils	Legislation and policy Funding	Prevent financial and environmental losses associated with wilding pines
Primary Industry Farmers Foresters	Land management	Economic return - prevent loss of productive land
Energy Industry Hydro-electricity companies	Water user	Economic return – ensure adequate water yields
Tourism Regional tourism bodies Tourism operators	Promote tourism in Otago	Economic return – prevent loss of iconic landscapes
Landowners and residents	Environmental amenity users	Amenity values – enjoy iconic landscapes
Mana whenua Ngāi Tahu and hapū	Land management Advocacy Environmental kaitiaki	Protection of native biodiversity Protection of cultural values
Special interest groups Whakatipu Wilding Conifer Control Group Inc Central Otago Wilding Conifer Control Group Inc Upper Clutha Wilding Tree Group Wilding Pine Network	See above	See above

4.4 Investment Objectives

The following key investment objectives align with the NZ Wilding Conifer Management Strategy and Objective 6.3.4 of the Otago Regional Pest Management Plan:

"*Over the duration of the Plan (2019-2029), progressively contain and reduce the geographic extent of wilding conifers within the Otago Region to minimise adverse effects on economic well-being and the environment".*

1. To avoid the loss of productive land caused by existing or new infestations of wilding conifers.
2. To avoid the loss of indigenous biodiversity caused by existing or new infestations of wilding conifers.
3. To avoid the significant loss of water yield for irrigation and hydroelectric catchments
4. To protect Māori cultural values, e.g. sites of significance to mana whenua are free from the impacts of wilding conifers.
5. To improve biodiversity values, protect iconic Otago landscapes, and provide amenity values for people and communities.

6. To protect the progress already made through significant financial investment to date by avoiding re-infestation of areas previously cleared of wilding conifers.

4.5 Critical Success Factors (CSFs)

The following critical success factors and outcomes have been developed and identified in the Otago Regional Wilding Conifer Strategy 2023 – 2029.

4.5.1 Improving Understanding and Prioritising Work

- Reliable monitoring data is used to prioritise control work, report on the impact of control work undertaken, and provide a better understanding of subregional nuances.
- Control work across the region is prioritised based on the 4 S's (species, status of control, spread factor, seed sources) as well as environmental, social, cultural, and economic factors for longer-term gains.
- There is an increase in the amount of work being undertaken to control the spread of conifers at an early stage (pre-coning).
- Current and future risks are better understood and recorded in WCIS or another central database.

4.5.2 Awareness and Education

- Communities across Otago are well informed and aware about the risk of wilding conifer spread, the urgency of the issue in their area, and the benefits of early intervention.
- Landowners are aware of their responsibilities regarding wilding conifer control, the need to keep areas clear and manage their land accordingly.
- Individuals and communities are undertaking a greater amount of wilding control, motivated in part by successes reported elsewhere.
- New non-production plantings (e.g., plantings in subdivisions, shelterbelts, amenity trees etc.) are non-spreading species.
- Communities across Otago have a better understanding of the difference between problematic pest trees and trees that are providing commercial benefits, carbon sequestration, biodiversity benefits, and other environmental benefits.
- Control work on public land continues at a higher rate due to less community resistance.

4.5.3 Funding

- More funding is secured to undertake early intervention control work.
- An increase in the amount of work to control the spread of conifers at an early stage.
- Decisions about wilding conifer control are informed by regional cost benefit analysis.

- There is a continuation of, and increase in, the amount of NWCCP-funded wilding control work undertaken in Otago.
- There is longer-term certainty that there is a programme and continuity of delivery structures.
- An appropriate level of funding from ORC, supported by a business case.
- Community-led wilding conifer control groups are operating across the region, particularly in Wanaka.

4.5.4 Regulation

- ORC's regulation is clear, enforceable, and fit for purpose to achieve the RPMP objectives. There is better alignment between district, regional and national-level regulation, where needed, making compliance and enforcement clearer and more streamlined.
- Cleared areas are kept clear.
- ORC and TAs have a better understanding of controls provided at a district level and can work together for greater controls / better monitoring of existing controls at the TA level, where beneficial.

4.6 Main Benefits of Additional Investment

The "Benefits and Costs of Additional Investment in Wilding Conifer Control in the Otago Region" report (Sapere 2023) identified several benefits of additional investment in controlling Wilding Pines in the Otago Region. Note that the spatial scale of the benefits is directly dependent on the level of investment, because of increased spread of wilding conifers with reduced investment (Figure 3).

The main benefits of ongoing investment in wilding conifer control in the Otago region (summarised in Table 5) include benefits to:

- Primary production / productive land use
- Water yields for hydro generation and irrigation.
- Reduced wildfire spread and damage risk.
- Protecting iconic landscapes for recreation and aesthetic value
- Avoiding biodiversity losses – including preventing soil legacies
- Protecting Māori cultural values e.g. protecting sites of significance to Mana Whenua, and Māori land, from the impacts of introduced species.

Key beneficiaries from the investment include:

- Farmers / Agriculture Sector
- Property owners
- Mana whenua
- Hydroelectricity sector

- Regional tourism sector
- NZ public
- Visitors to NZ
- Native biodiversity

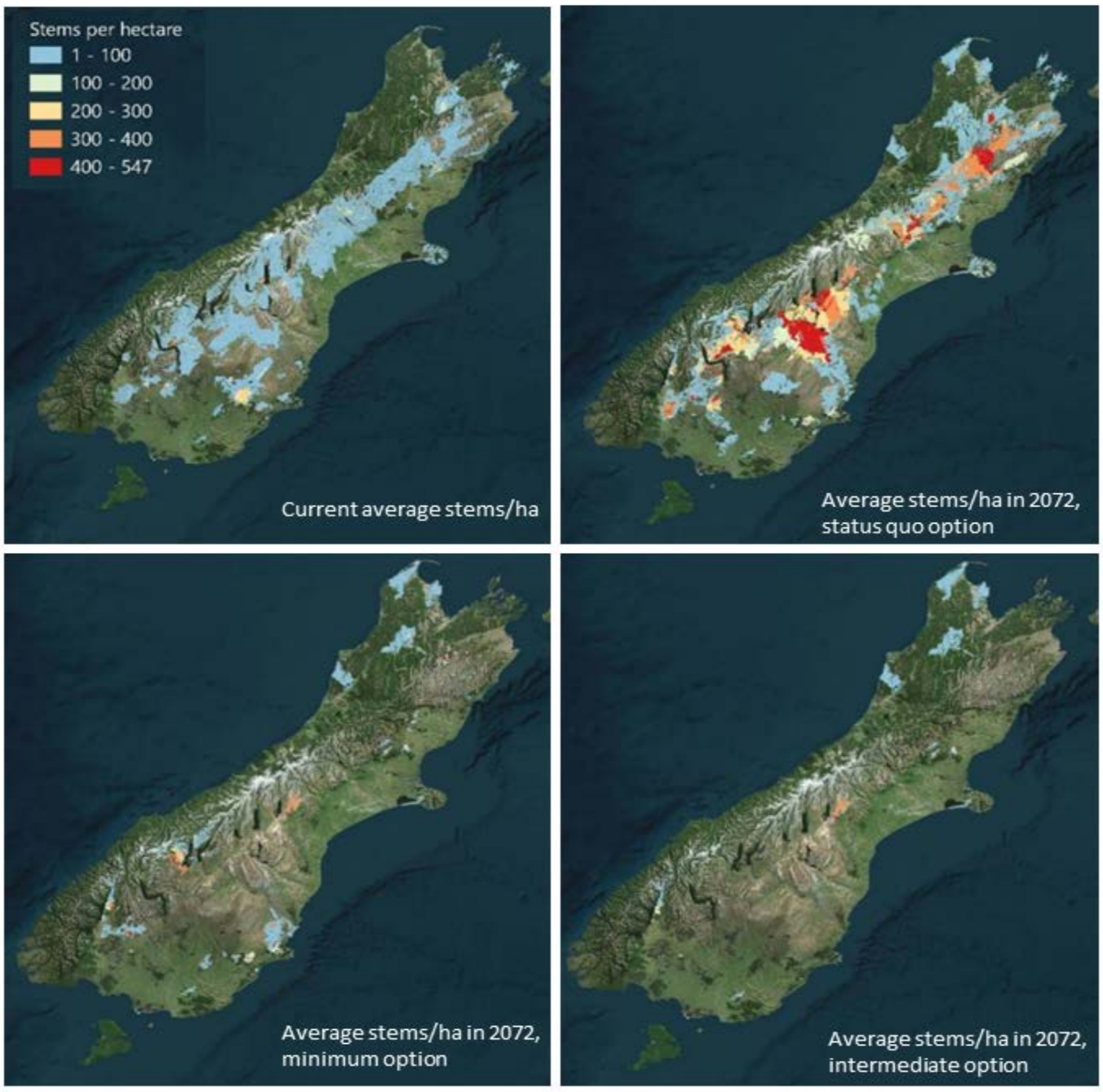

Figure 3: Potential spread of wilding pines under each option. Adapted from Sapere 2022.

Table 5: Main benefits of additional investment

Benefit / disbenefit name & description	Indicator & description	Measure(s) and evidence base (data source) (quantifiable)	Who Benefits?	Monetisable or non-monetisable?	Direct or Indirect?
B1: Increased water yields for hydroelectricity generation and irrigation	Increase in available water for hydro generation. Increase in available water for irrigation	Mean annual low flow (MALF) Water meters used to measure water take	Hydroelectricity generators Farmers	Monetisable	Direct
B2: Reduced wildfire spread and damage risk	Avoided spending on wildfire suppression	Costs of wildfire suppression and damages estimated based on an economic analysis of the cost of wildfires (BERL, 2009)	Property owners Mana whenua Flora and fauna	Monetisable	Direct
B3: Avoiding biodiversity loss	Estimated hectares of native vegetation prevented from new infestation due to wilding pine control in neighbouring area.	Avoided spread measured relative to models of predicted spread without control (Manaaki Whenua Landcare Research)	Flora and fauna NZ public	Monetisable through non-market value methods (e.g. willingness to pay)	Direct
B4: Protecting iconic landscapes for recreation and aesthetic values	Removal of wilding pines enhances enjoyment of Otago's iconic landscapes	Survey of households and visitors	Otago and NZ Tourism NZ public NZ visitors	Monetisable through non-market value methods (e.g. willingness to pay)	Direct
B5: Avoiding lost productive land use	Hectares of productive land restored due to removal of wilding pines. Estimated hectares of productive land prevented from new infestation due to wilding pine control in neighbouring area	Productive land cleared measurable through GIS and aerial imagery. Avoided spread measured relative to models of predicted spread without control (Manaaki Whenua Landcare Research)	Agriculture sector	Monetisable	Direct
B6: Protecting Māori cultural values, such as protecting sites of significance to mana whenua from the impacts of invasive species, and supporting mana whenua to exercise kaitiakitanga responsibilities	Mana whenua are satisfied that sites of significance are being protected from wilding pines. Mana whenua are satisfied that their own contributions to wilding pine control are supported by the ORC programme.	Survey mana whenua satisfaction with the programme	Mana whenua	Non-monetisable	Direct

4.7 Main Risks

Table 6 summarises the main risks that need to be managed to achieve the investment objectives.

Table 6: Current risk analysis.

	Main Risk	Likelihood (H/M/L)	Impact (H/M/L)	Comments & Risk Management Strategies (Mitigations)
1	*Breakdown of relationships with landowners leading to difficult or no access to infested areas*	*Low*	*High*	*Ongoing landowner and community engagement to form and maintain strong relationships.*
2	*Seed sources remain active*	*High*	*High*	*Some landowners, particularly in urban areas, may be opposed to removal of invasive conifers from their properties resulting in remaining seed sources.* *Campaign to increase public awareness of the negative impacts of wilding conifers.* *Spatial datasets of infestation areas and seed sources are produced based on investigations by ORC.* *Make use of legislative powers under Otago Regional Pest Management Plan which explicitly enable the removal of problematic seed sources (see next point)*
3	*It is unknown whether existing regulatory controls are adequate*	*Medium*	*Medium*	*There has been little testing of rules in the Otago Regional Pest Management Plan, Land and Water Regional Plan, NES for Plantation Forestry in the context of wilding conifers.* *Review of relevant regulations to ensure they are fit for purpose.* *Following review and stakeholder consultation, ORC to assess the current regulatory regime and identify any changes required at a regional level and/or any need to advocate for changes at central government level*
4	*There is no formal compliance monitoring programme*	*High*	*High*	*Non-compliance with RPMP is reported or noted opportunistically, and there is no coordinated approach to identifying breaches. As such, breaches may be going undetected.* *A formal compliance monitoring programme will be developed by ORC.* *Effective mechanisms for reporting non-compliance are developed and reports are acted on in a timely manner*
5	*Undetected infestations spread without the knowledge of the management programme*	*Medium*	*Medium*	*Implement robust regional surveillance programme.* *Encourage reporting of sightings in new locations* *When available, implement remote surveillance programme (in development by MPI)*

A Risk Management Strategy, and Risks and Issues Registers, will be developed and will be regularly and progressively updated throughout the project as more information comes available.

4.8 Key Constraints, Dependencies and Assumptions

The proposal is subject to the following constraints, dependencies, and assumptions (Table 7).

Management strategies and registers will be developed to record these, and they will be regularly monitored and managed during the project.

Table 7: Key constraints, dependencies and assumptions

	Constraints	**Notes**
C1	Funding constraints – levels of funding	The number of Management Units which can be controlled effectively is dependent on the level of funding.
C2	Regulatory Framework	Requirement to comply with all relevant legislation and policy.
	Dependencies	**Notes**
D1	Co-operation of landowners	Non-compliance with the Regional Pest Management Plan is a potential issue requiring monitoring and enforcement.
D2	Cooperation of stakeholders	Control work in each wilding pine Management Unit is undertaken through a collaborative partnership between the Otago Regional Council, Department of Conservation, Whakatipu Wilding Conifer Control Group (WCG) and Central Otago Wilding Conifer Control Group (CWG).
D3	Political support	Otago Regional Council and Department of Conservation are key partners and are subject to potential changes in policy.
D4	Availability of sufficient worker resource	On-the-ground control work is carried out by contractors.
	Assumptions	**Notes**
A1	Cost Benefit Analysis makes multiple assumptions	The CBA by Sapere (2023) relies on multiple assumptions including: the rate of wilding pine spread with and without control, valuations of benefits of control, timeframes of benefits etc. These assumptions are clearly outlined in the CBA by Sapere (2023) and are summarised in Appendix 1.

5.0 Financial Case

The Financial Case outlines the funding requirements for the preferred investment option – Option 3. It is important to note that, subsequent to Sapere's (2023) CBA analysis, newer and more detailed costing estimates for the active management units in Otago have become available. The costings presented for Option 3 in this Financial Case use the newest estimates available and are therefore different from the costings presented in the CBA (Sapere 2023, Appendix 1)[7].

5.1 Cost of preferred option

The cost of implementing Option 3 over a 10 year period is estimated at $66 million. Given the current funding level of $22 million, the shortfall in funding needed to implement Option 3 is therefore $44 million over a 10 year period. Delays to funding will result in additional cost, because without adequate spending to maintain cleared areas re-infestation is rapid. Operational costs therefore increase substantially for every year that maintenance does not occur.

Costings include cash and in-kind contributions from NWCCP, community groups, landowners, and ORC, broken down into control costs, and management costs/overheads.

Control costs:

- NWCCP funding: The currently committed ongoing investment from NWCCP in the Otago region is $1.07 million per annum over the next ten years. This is insufficient to implement Option 3.
- Community cash contributions: This amount is relative to the number of community groups and the additional funding they could potentially source from elsewhere. Ongoing minimum baseline funding is estimated based on contributions from 2023/24.
- Landowner cash contributions: This amount is relative to the NWCCP funding received, based on the cost sharing arrangements for completing work.

Management costs/overheads:

- This covers ORC staff and paid community group managers. Costs are relative to the amount of work being managed – i.e. management of more MUs will cost more. Ongoing minimum baseline funding includes staff time and 2023/24 level of community funding (subject to the ORC LTP 2024-2034).

[7] Notwithstanding differences in dollar-value estimates, the overall results of the CBA (Table 1, Section 3.0) remain valid for the purposes of selecting a preferred investment option on the assumption that benefits and costs have all increased at approximately the same inflation rate.

A detailed breakdown of contributions is provided in Table 8.

Table 8: Current funding for wilding conifer management in Otago and comparison with the estimated costs of implementing the preferred management scenario (Option 3) over a 10 year period from 2024-2034.

Current funding	**Cash**	**In Kind**	**Grand Total**
Control	**15,500,000**		**15,500,000**
NWCCP	10,700,000		10,700,000
Community groups	3,000,000		3,000,000
Landowners	1,800,000	500,000	2,300,000
Management		**6,000,000**	**6,000,000**
Community groups		3,000,000	3,000,000
ORC		3,000,000	3,000,000
Grand Total Current Funding	**15,500,000**	**6,500,000**	**22,000,000**
Costing - Option 3	**Cash**	**In Kind**	**Grand Total**
Control	**57,250,000**	**750,000**	**58,000,000**
NWCCP	45,000,000		45,000,000
Community groups	5,000,000		5,000,000
Landowners	7,250,000	750,000	8,000,000
Management		**8,000,000**	**8,000,000**
Community groups		4,000,000	4,000,000
ORC		4,000,000	4,000,000
Grand Total Costs - Option 3	**57,250,000**	**8,750,000**	**66,000,000**
Funding Shortfall	**-41,750,000**	**-2,250,000**	**-44,000,000**

6.0 Conclusion

We have presented a simplified business case assessing four short-listed investment options to determine the option which best meets the following criteria:

- Optimises value-for-money – the ‘economic case’.
- Is supported by a compelling case for change – the ‘strategic case’.
- Is financially beneficial – the ‘financial case’.

Based on our analysis and that of Sapere (2023), we recommend seeking new funding of $44 million required over the next 10 years to implement Option 3 – Intermediate ‘Extend the investment’ (this funding is in addition to the $22 million that is already available over the same time period). We have shown that this option represents excellent value for money and meets all investment objectives and critical success factors to deliver biodiversity and economic benefits for the Otago region. Implementing the ‘extend the investment’ option will avoid economic losses (lost primary production, reduced water yields, loss of biodiversity and cultural values and increased fire spread and damages) which amount to billions of dollars over 50 years. These losses are enormous compared against the short-term costs saved by scaling back the programme.

7.0 References

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Sapere (2022). *Benefits and Costs of Additional Investment in Wilding Conifer Control.* Report prepared by Sapere for the Ministry of Primary Industries on behalf of the National Wilding Conifer Control Programme.

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Appendix 1

Detailed Economic Case

The Economic Case identifies and analyses a range of investment options to identify the option that optimises value for council and New Zealand. Based on the strategic context for the investment proposal and a robust case for change, it:

- Assesses four short-listed options (based on Otago Region CBA, Sapere 2023) that have the potential to deliver the proposal's investment objectives and meet the identified critical success factors.
- Evaluates the short-listed options by assessing the costs and benefits of each option.
- Recommends a preferred option.

A national wilding conifer cost benefit analysis was commissioned by MPI in 2018 which quantified that doing nothing, or doing little, will generate a large negative economic impact for the country: a loss of $4.6 billion (Sapere 2018). A more recent cost benefit analysis, also commissioned by MPI in 2022, estimates that by rolling back national funding to $10 million per annum it would result in losses of $3.8 billion over 50 years (measured in 2021 dollars) through losses in primary production, water yields, biodiversity, and increased fire risk (Sapere 2022). These losses are compared against the avoided expenditure and associated deadweight loss of $71 million for net losses of $3.8 billion. These losses can be avoided if funding continues at a similar level as under the Jobs for Nature programme.

Investment Options

Using the national wilding conifer CBA data and model, ORC commissioned a regional wilding conifer CBA specifically for the Otago region (Sapere 2023). The report presents an updated cost benefit analysis of wilding conifer control for the Otago region and assesses the economic impact of additional investment in wilding conifer control for three short-listed investment options:

- Minimum "protect the investment" (control 89.4% of the known infestation) – continue to support existing control activity across the 14[8] currently active management units.
- Intermediate "extend the investment" (control 99.9% of the known infestation) – expanding the activity to include a further five priority management units totalling 19 management units.
- Maximum "national control" (control 99.9% of the known infestation) – the intermediate option plus slightly higher funding in some management units.

The Otago Regional CBA assesses the impact of the above three investment options against the counterfactual. The counterfactual is what would happen if additional funding was not secured, called the "status quo" option:

[8] Note that Sapere's (2023) analysis is based on 14 active management units in the Otago region. This total includes two short-term community projects in Dunedin and Waitaki that are no longer active.

- Status Quo “losing the investment” (control 49.6% of the known infestation) - Scale back control activities to 4 management units within the Otago Region.

Current funding is approximately $10 million per annum nationally with ORC estimated to receive $1.07 million annually over the next three years.

The options were developed through an iterative process with the National Wilding Conifer Programme’s Operational Advisory Group (OAG). The group reprioritised all management units and used this ranking to determine which areas would be abandoned under the status quo option and which would be included under the minimum, intermediate and maximum options.

For Otago, under the status quo option, baseline funding of approx. $1.07 million per annum continues from 2023/24. If no further investment is made, the programme would be substantially scaled back over the next four years. This would result in areas which are currently free from wilding conifers becoming re-invaded, the gains made on abandoned management units would be lost and future benefits foregone as wilding conifers spread. Of the 21 management units within Otago, only the four highest priority MUs (covering 49.7 per cent of the known infestation) would continue to be actively managed by 2025/26.

This economic case uses the four short-listed investment options presented in the Regional CBA to assesses the economic impact of additional investment in wilding conifer control in the Otago region.

Economic Assessment of the Investment Options

The purpose of this Cost Benefit analysis is to ensure that decision-makers are well-informed about the implications and trade-offs of using economic resources and are provided with a consistent basis for assessing and ranking competing options.

The assessment methodology used is Benefit Cost Ratio (BCR). A detailed regional CBA has been undertaken by Sapere Ltd (2023). The process for each of the short-listed options (see Section 4.1) was to:

- Establish the assumptions and scope underlying the analysis.
- Determine an appropriate period for the analysis.
- Identify all significant benefits and costs.
- Assign monetary values to the benefits, wherever possible
- Discount the benefits and costs to present values (in 2021-dollar equivalents)
- Consider the effect of any intangible costs and benefits that cannot be reliably assigned monetary values.
- Assess risk and uncertainty.

This section summarises the key points from that analysis.

Assumptions

The following assumptions were made in the cost-benefit analysis (Sapere 2023):

- Time zero, future costs and benefits were calculated starting 2022/23.
- Base date, the date that is used to standardise the valuation of all monetised benefits and costs, was 2021/22.

- The analysis period starting from time zero was 50 years. The nature of wilding conifer control is that costs are largely incurred up-front, and the benefits accrue gradually thereafter. A 50-year horizon was considered appropriate to ensure the benefits were adequately included in the result.
- While the cost of controlling each MU reduces over time, the cost of control activity will be ongoing until infestations are controlled to a level that they can be managed by landowners and communities. With the required funding, the majority of MUs under the minimum option will be transitioned to local management by 2033/34, in whole or in part. Most MUs under the intermediate and maximum options are likely to be able to transition 6 – 12 years after commencement of control. Some coastal MUs may never reach full transition due to major seed sources in that area. Discount rate was 5 per cent per annum as per Treasury guidance – this is the rate that reflects the time value for money and used to calculate the present value of the costs and benefits at time zero.
- The Otago Regional CBA excluded the benefits from employment and the impact of carbon emissions, both of which are explained in the CBA report.

Assessment Period

The start date for valuation purposes was assumed to be 2022/23. Due to process delays, this start date is now out of date, but the CBA is nevertheless still informative to make comparisons between the short-listed options on an economic basis.

For the Status quo option, the remaining estimated economic life of the asset has been used. This is assumed to be nine years.

Discount and Inflation Assumptions

The CBA used a 5% discount rate to account for predicted inflation meaning that at 15 years the benefits and costs are halved, and by 30 years we recognise less than 25 per cent of the value (Figure A1).

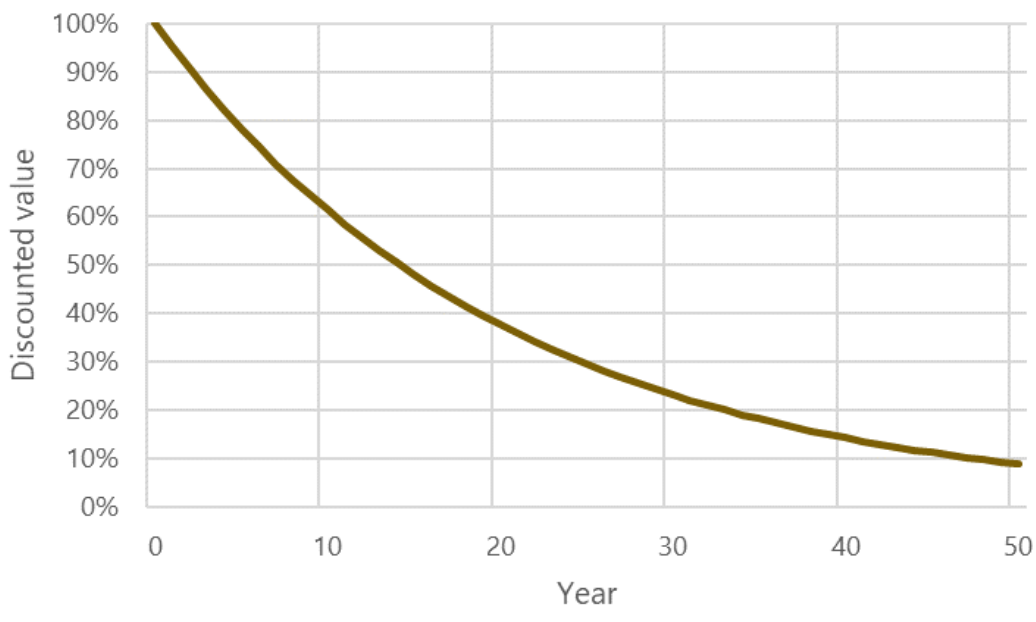

Figure A1: Impact of discounting. Source: Sapere 2023.

Estimate Costs

Note: Subsequent to Sapere's (2023) CBA analysis newer and more detailed costing estimates for the active management units in Otago have become available. The costings presented for Option 3 in the Financial Case (Section 4) use the newest estimates available and are therefore different from the costings presented in this Appendix[9].

Costs of each short-listed option within the CBA were defined as the additional financial costs (or required fund) of the option compared with the status quo option. The costs included in the CBA consist of:

- Control and fixed programme management costs (the cost of managing and administering the NWCCP, the cost of control activity including control staff, project managers and contractors, and the cost of post control monitoring).
- Deadweight loss of taxation (20 percent of control and programme costs) this is the welfare loss of taxpayers, and NZ Treasury suggests CBAs should include a deadweight cost equal to 20 per cent of project costs that are funded from general taxation.

Programme control and programme management costs were provided by MPI for the nine-year period from July 2022 to June 3031. These costs have been adjusted for inflation between September 2021 and September 2023 (Table A1). It is important to note that in both the national and regional CBAs the estimated costs provided were intended to be used by Treasury to assess how much investment was required from central government to reduce the impact of wilding conifers.

[9] Notwithstanding differences in dollar-value estimates, the overall results of the CBA (Table 1, Section 3.0) remain valid for the purposes of selecting a preferred investment option on the assumption that benefits and costs have all increased at approximately the same inflation rate

Table A1: Programme control and programme management costs - adjusted for inflation from 2021 to 2023.

	22/23	23/24	24/25	25/26	26/27	27/28	28/29	29/30	30/31	Total
Status quo										
Control and Programme	$4.42	$1.93	$2.04	$2.04	$1.93	$1.70	$2.72	$2.04	$2.04	$20.85
DWL	$0.88	$0.39	$0.41	$0.41	$0.39	$0.34	$0.54	$0.41	$0.41	$4.17
Total	$5.30	$2.31	$2.45	$2.45	$2.31	$2.04	$3.26	$2.45	$2.45	$25.01
Minimum										
Control and Programme	$4.98	$3.29	$5.66	$4.76	$4.08	$3.06	$4.64	$2.83	$2.27	$35.57
DWL	$1.00	$0.66	$1.13	$0.95	$0.82	$0.61	$0.93	$0.57	$0.45	$7.11
Total	$5.98	$3.94	$6.80	$5.71	$4.89	$3.67	$5.57	$3.40	$2.72	$42.69
Intermediate										
Control and Programme	$6.12	$4.08	$6.57	$5.32	$4.87	$3.40	$4.87	$3.06	$2.72	$41.01
DWL	$1.22	$0.82	$1.31	$1.06	$0.97	$0.68	$0.97	$0.61	$0.54	$8.20
Total	$7.34	$4.89	$7.89	$6.39	$5.85	$4.08	$5.85	$3.67	$3.26	$49.21
Maximum										
Control and Programme	$6.57	$4.98	$7.36	$6.12	$4.87	$3.40	$4.98	$3.06	$2.72	$44.07
DWL	$1.31	$1.00	$1.47	$1.22	$0.97	$0.68	$1.00	$0.61	$0.54	$8.81
Total	$7.89	$5.98	$8.84	$7.34	$5.85	$4.08	$5.98	$3.67	$3.26	$52.88

Estimating Monetary Benefits

The CBA monetised productive land use, and water yield benefits using market values for foregone production. Specifically, these included:

- Productive land use – valued using sheep and beef farm profitability (earnings before interest, taxes, and rent (EBITR) from sheep + beef survey data)
- Water yields (in hydro catchments) - value of foregone hydro generation using the resource rents series produced by Statistics NZ, which is broadly equivalent to the EBITR measure.
- Water yields (irrigation) – valued using the value of irrigation based on profitability of farms on irrigated land.

The CBA valued reduced fire risk using an avoided costs method based on the economic cost of wildfires as outlined in BERL, 2009.

The CBA applied a non-market value for the cultural ecosystem services - biodiversity, recreation, and landscape aesthetics. They were monetised using a stated preference method. A full list of calculated costs and benefits and values used to calculate them is provided in the national wilding conifers report (Sapere 2022).

Non-monetary Benefits and Disbenefits

Māori cultural values were not monetised in the CBA. There were two main reasons for this:

- Māori values are holistic and can include principles, intrinsic, tangible and intangible values, and there is not enough information available for these values.
- Each iwi / hapū may have its own tradition in this respect, which makes a uniform discussion of 'Māori heritage values' problematic.

Therefore, the value Māori might place on control of wilding conifers has been qualitatively described in the CBA (Sapere 2023, section 5.5 Māori cultural values). This qualitative assessment should be considered alongside the Benefits to Cost Ratio (BCR) calculation when funding decisions are made for wilding conifer control.

Cost Benefit Analysis Results

Note: Subsequent to Sapere's (2023) CBA analysis newer and more detailed costing estimates for the active management units in Otago have become available. The costings presented for Option 3 in the Financial Case (Section 4) use the newest estimates available and are therefore different from the costings presented in this Appendix[10].

Table A2 presents the results of the Otago regional Cost-Benefit Analysis (Sapere 2023), adjusted to account for inflation between 2021 and 2023.

High priority management areas were selected based on the spread risk of the wilding species, the vulnerability of the landscape to invasion, and the cost effectiveness of control. The decreasing BCR for intermediate and maximum options reflects this prioritisation.

Table A2: Summary of the Otago CBA results for the status quo, minimum, intermediate and maximum options modelled over 50 years. Source: Sapere 2023 (values have been adjusted to account for inflation between Sep 2021 and Sep 2023).

Present value ($M)		Status quo - lose the investment	Minimum - protect the investment	Intermediate - extend the investment	Maximum - national control
Benefits	Productive land use	$148	$546	$605	$605
	Hydro	-$69	$80	$199	$199
	Irrigation	$120	$244	$432	$436
	Cultural / biodiversity	$636	$2,337	$2,380	$2,380
	Fire	$6	$88	$95	$95
	TOTAL	$841	$3,296	$3,711	$3,715
Costs	Programme	$17	$28	$33	$36
	DWL	$3	$6	$7	$7
	TOTAL	$20	$34	$40	$43
Total economic value					
Net present value		**$820**	**$3,262**	**$3,672**	**$3,672**
Benefits: Cost Ratio (BCR)		**42**	**96**	**93**	**86**
Use value					
Net present value		**$186**	**$923**	**$1,290**	**$1,292**
Benefits: Cost Ratio (BCR)		**10**	**28**	**33**	**31**

[10] Notwithstanding differences in dollar-value estimates, the overall results of the CBA (Table 1, Section 3.0) remain valid for the purposes of selecting a preferred investment option on the assumption that benefits and costs have all increased at approximately the same inflation rate

Financial cost of all options

Note: Subsequent to Sapere's (2023) CBA analysis newer and more detailed costing estimates for the active management units in Otago have become available. The costings presented for Option 3 in the Financial Case (Section 4) use the newest estimates available and are therefore different from the costings presented in this Appendix.

As outlined above, Sapere's (2023) CBA for the Otago region was based on programme control and programme management costs provided by MPI for the nine-year period from July 2022 to June 3031. In this section, cost estimates are updated to cover the period from 2024-2035 to allow for the calculation of the funding shortfall for all management scenarios considered.

Table A3 summarises the estimated cost of each of the four options for the period from 2024/35 through to 2033/34, and the shortfall in funding to implement them. There is a range of $4.14 - $23.06 million of funding shortfall. Note that even the 'Status Quo' option has a shortfall in funding due to inflation in estimated costings since 2021. Costings include NWCCP funding, and existing in-kind and cash contributions from council, landowners and community organisations.

Table A3: Summarised costings and estimated funding shortfall for all options over the period from 2024/25 through 2033/34 ($million).

Option	Cost	Current funding	Shortfall
1 - Status Quo	$28.64	$24.50	$4.14
2 - Minimum	$42.12	$24.50	$17.62
3- Intermediate	$45.86	$24.50	$21.36
4 - Maximum	$47.56	$24.50	$23.06

Summary Assessment of Options

Note: Subsequent to Sapere's (2023) CBA analysis newer and more detailed costing estimates for the active management units in Otago have become available. The costings presented for Option 3 in the Financial Case (Section 4) use the newest estimates available and are therefore different from the costings presented in this Appendix.

An analysis of the shortlisted options against Investment Objectives (Section 3.5) and Critical Success Factors (Section 3.6) is shown in Table A4. Taking this into consideration, a summary assessment of each option is presented in Table A5.

Table A4: Summary assessment of shortlisted options

	Option 1 Status Quo	Option 2 Do minimum	Option 3 Intermediate	Option 4 Maximum
Investment objectives				
To avoid the loss of productive land caused by existing or new infestations of wilding conifers.	?	√	√	√
To avoid the loss of indigenous biodiversity caused by existing or new infestations of wilding conifers	?	√	√	√
To avoid the significant loss of water yield for irrigation and hydroelectric catchments	X	√	√	√
To protect Māori cultural values, e.g. sites of significance to mana whenua are free from the impacts of wilding conifers.	?	√	√	√
To improve biodiversity values, protect iconic Otago landscapes, and provide amenity values for people and communities.	?	√	√	√
To protect the progress already made through significant financial investment to date by avoiding re-infestation of areas previously cleared of wilding conifers	X		√	√
Critical success factors				
Improving Understanding and Prioritising Work	?	√	√	√
Awareness and Education	?	√	√	√
Funding Net present value BCR	X $820M 42	√ $3.2B 96	? $3.6B 93	X $3.6 86
Regulation	?	X	√	√
Summary	**Rejected**	**Possible**	**Preferred**	**Rejected**

KEY:	
Red – does not meet	X
Yellow – partially meets	?
Green – Fully meets	√

Table A5: Short-list options appraisals.

OPTION 1	**STATUS QUO**
Description	Status Quo “losing the investment” (control 49.6% of the known infestation) - Scale back control activities to four management units within the Otago Region.
Net costs	$28.6 million 2024/25 to 2033/34
Advantages	The status quo option has a net present value of $820 million over 50 years. The status quo option produces a Benefit Cost Ratio (BCR) of 42, which is significantly less benefits per dollar spent than all other options assessed.
Disadvantages	This option is a substantial disinvestment that would see the area controlled reduce from 89.41 per cent of the known infestation to 49.65 per cent. As a result, there would be a substantial loss in benefits as wilding conifers re-infest land no longer under active management. Relative to the minimum option (continuing funding at the level provided under the Jobs for Nature programme) we estimate losses of $2.5 billion over 50 years from lost primary production, reduced water yields, loss of biodiversity and cultural values and increased fire spread and damages. These losses are enormous compared against the cost savings (including deadweight loss) of $14 million by scaling back the programme.
Conclusion	There is a substantial loss of benefits associated with this option, including the loss of much of the progress already made through financial investment to date. As such, this option either severely limits the scale at which all investment objectives and critical success factors can be achieved or fails to meet them entirely.

OPTION 2	**MINIMUM**
Description	Minimum “protect the investment” (control 89.4% of the known infestation) – continue to support existing control activity across 14 management units.
Net costs	$42.1 million 2024/25 to 2033/34
Advantages	The minimum option provides the best value for money of all the options presented with a Benefit Cost Ratio (BCR) of 96. This option has a net present value of $3.2 billion over 50 years.
Disadvantages	This option requires significant additional investment and controls 89.4% of the known infestation, leaving some lower priority Management Units unmanaged.
Conclusion	This option provides the best value for money (based on BCR) and aligns with prioritisation factors listed in CSF1. Most investment objectives and critical success factors are met at least partially. Because some lower priority MUs will be discontinued under this option, investment objective 6 (avoiding re-infestation of previously cleared areas) and CSF 4 (regulation) are not fully met.

OPTION 3	**INTERMEDIATE (Preferred option)**
Description	Intermediate “extend the investment” (control 99.9% of the known infestation) – expanding the activity to include a further five priority management units for a total of 19 management units
Net costs	$45.8 million 2024/25 to 2033/34
Advantages	This option provides a BCR of 93, with a net present value of $3.6 billion over 50 years. All current MUs are maintained, and an additional five MUs are added with a result of comprehensive coverage
Disadvantages	This option is slightly less cost-effective than option 2 (i.e. lower BCR).
Conclusion	This option meets all investment objectives and CSFs, with a high BCR (although lower than Option 2) and equal-highest net present value (with Option 4).

OPTION 4	MAXIMUM
Description	Maximum “national control” (control 99.9% of the known infestation) – the intermediate option plus slightly higher funding in some management units.
Net costs	$47.5million 2024/25 to 2033/34
Advantages	This option provides a BCR of 86, with a net present value of $3.6 billion. over 50 years.
Disadvantages	This is the most expensive option and has minimal benefits for the Otago region relative to option 3 (i.e. no additional MUs).
Conclusion	This option meets all investment objectives and CSFs except for those associated with funding and basing decisions on the findings of a regional CBA (as this option has a lower BCR than both option 2 and option 3).

Recommended Option

The preferred option is Option 3 – (Intermediate - Extend the investment) because this option meets (or partially meets) all investment objectives and will achieve the CSFs (Table 13).

Although Option 2 is more cost effective with a BCR of 96, Option 3 also has a very good BCR of 93 and a higher net present value than Option 2 (a higher NPV indicates that the additional spend under this option is more than the required return on capital and should be pursued).

We therefore reason that recommending Option 3 still meets the CSF “*Decisions about wilding conifer control are informed by regional cost benefit analysis*”. Furthermore, Option 2 does not meet all investment objectives and CSFs and is therefore not preferred.

9.3. Catchment Advisor Work Programme

Prepared for:	Environmental Implementation Committee
Report No.	GOV2505
Activity:	Governance Report
Author:	Oliver Eden-Mann, Team Leader Catchments; Libby Caldwell, Manager Environmental Implementation
Endorsed by:	Joanna Gilroy, General Manager Environmental Delivery
Date:	5 March 2025

PURPOSE

[1] To outline to the Environmental Implementation Committee the work completed by the Catchment Advisors and the work programme for the 2024/25 financial year.

EXECUTIVE SUMMARY

[2] Over the last four years Council has increased its capacity and capability in the Catchments Team. This team sits within the Environmental Implementation Team.

[3] The Catchments Team operates under three guiding principles: building meaningful relationships, empowering and activating the Otago community for community-led change, and supporting ORC in delivering it's regulatory obligations, by keeping the Otago community informed about the latest regulations and providing information.

[4] In 2024, notable achievements included the successful running of 16 Intensive Winter Grazing workshops, the establishment of a region-wide urban engagement programme, increased focus on indigenous biodiversity, direct Catchment Advisor support to Waiora Manuherekia Project and the successful completion of 132 stream health checks on farm with individual landowners, Catchment Groups, urban residents and primary schools across the region.

[5] The 2024-2025 work programme (Attachment 1) focuses on building strong community relationships, empowering local initiatives, and ensuring effective communication of regulations/ best practices to landowners and community groups across the region. The key focus areas include Project Support, Stream Health Support, Biodiversity Support and specific work in both urban and rural areas.

[6] The 2025-2026 work programme will be developed based on working with other teams across Council to complement regulatory work (which includes a large education focus) and with external groups. It will seek continued alignment with and delivery of Council's Strategic Directions and Goals.

RECOMMENDATION

That the Environmental Implementation Committee:

a) ***Notes*** *this report.*

BACKGROUND AND DISCUSSION

[7] The Environmental Implementation team supports work across Biosecurity, Biodiversity, and Catchments. This paper focuses on the work of the Catchment Advisors within this team. Over the last four years ORC has increased its capacity and capability in the Catchments Team. The team has recently recruited a new Catchment Advisor for the Upper Lakes to reflect internal shifts within the team and is actively recruiting a new Catchment Advisor for the Coast to take on the North Otago or Taiari FMU. The team structure is included in Figure 1 below.

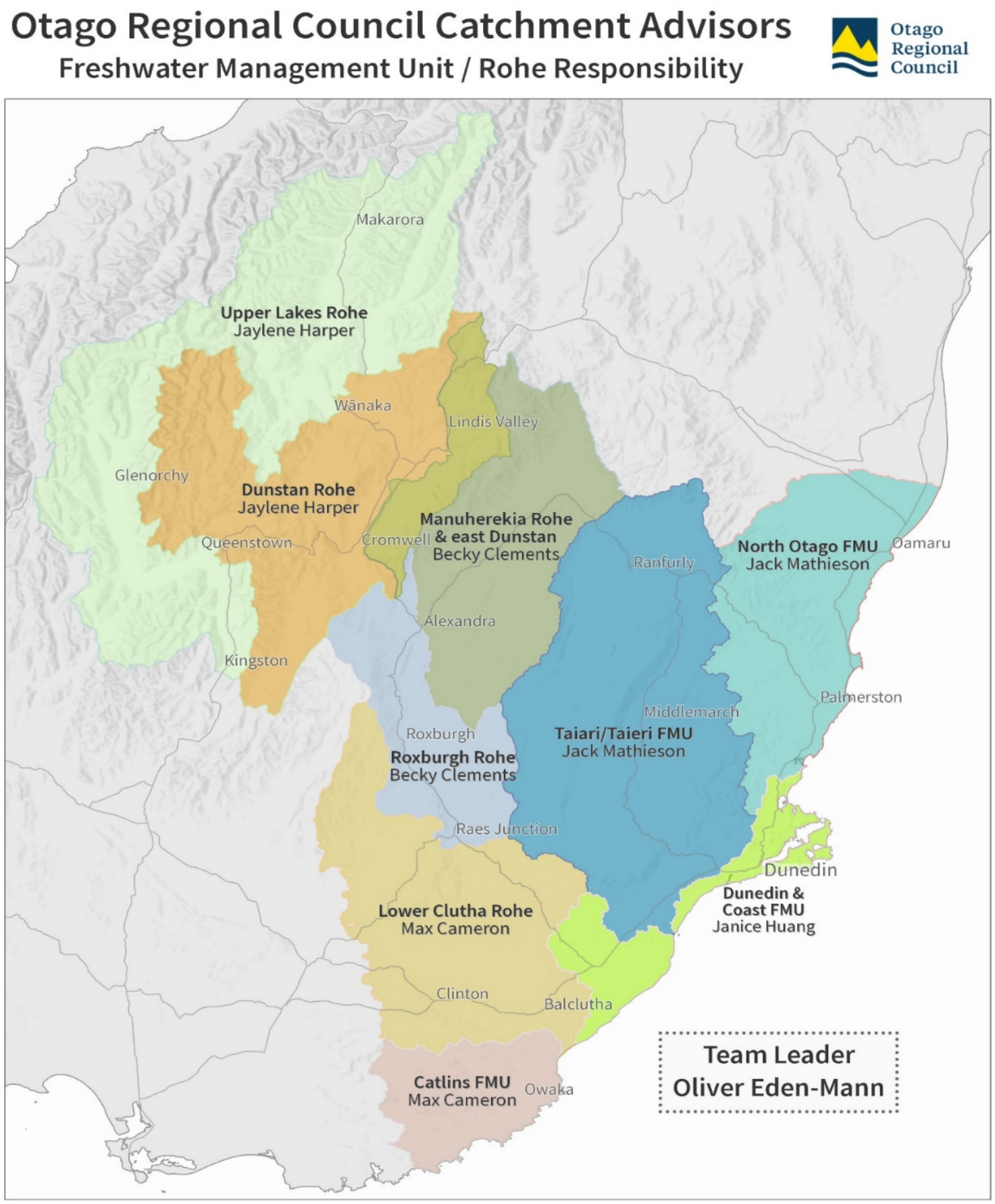

***Figure 1**: Catchment advisor work areas.*

[8] The Catchments Team and associated work programme connects to the ORC Strategic Directions by aligning to the communities, partnership and climate and environment focus areas. Through this work programme we are providing leadership in

communication, coordination, education and collaboration to support behaviour change to enhance the environment. We have sought input from the community and industry to develop and enhance our work programmes and will continue to do this, including in the development of the 2025-2026 work programme. We also enable healthy biodiversity through collaboration with landowners, communities and industry and provide advocacy, education and collaboration to support improved environmental management.

[9] The Catchments Team operates under three guiding principles: building meaningful relationships, empowering and activating the Otago community for community-led change, and supporting ORC in delivering its regulatory obligations, by keeping the Otago community informed about the latest regulations and providing information. These principles are central to the Catchments Team's daily activities.

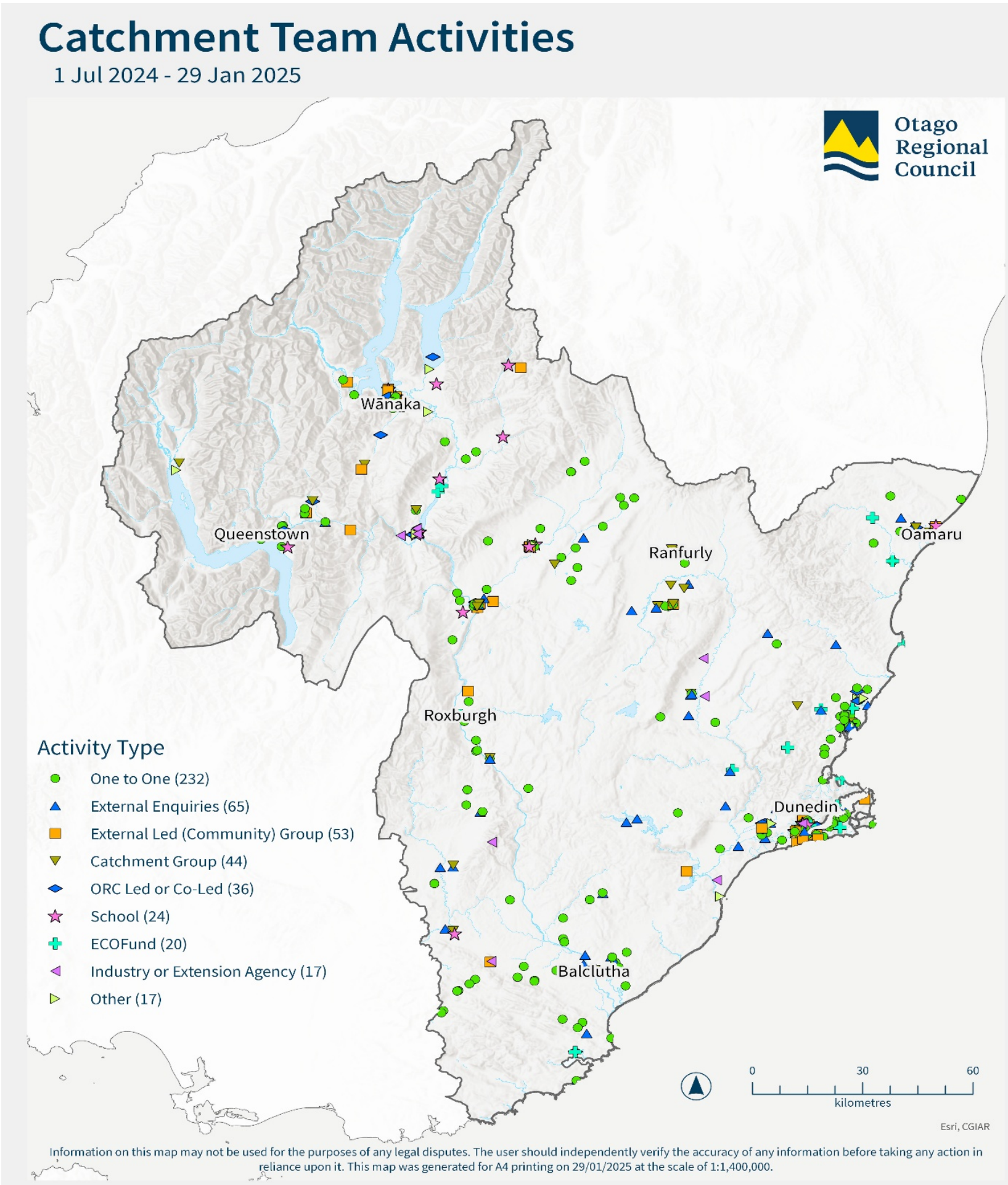

***Figure 2**: Snapshot of engagements for Catchments team from July 2024 to 29 January 2025.*

[10] Figure 2 above shows a snapshot of engagements undertaken by the Catchments Team from July 2024 to 29 January 2025.

[11] This period included 508[1] engagements and events led or co-led by the team across Otago. These included:

a) 132 Stream Health Support sessions

[1] Note: 5 engagements are not displayed in figure two due to recording issues, however they are still reflected in the above statistics.

b) 67 Urban work programme sessions
c) 9 Effluent management education and engagement sessions
d) 35 Biodiversity education and engagement support sessions
e) 21 Intensive Winter Grazing education and engagement sessions
f) 115 Supporting Key ORC Projects
g) 32 connecting with and supporting ECO-fund applicants
h) 102 other engagements (including Waiora Manuherekia, Balance Farm Awards and general enquiries)

[12] In 2024, notable achievements included the successful running of 16 Intensive Winter Grazing workshops, the establishment of a region-wide urban engagement programme, increased focus on indigenous biodiversity, direct Catchment Advisor support to Waiora Manuherekia Project and the successful completion of 132 stream health checks on farm with individual landowners, Catchment Groups, urban residents and primary schools across the region. The purpose of these initiatives is to support the community to build knowledge, capacity and sense of place for community-led action. This happens through ongoing upskilling, provision of information and resource sharing through on ground support from the Catchment Advisor Team.

Image 1: Catchment Advisors and community members looking at macroinvertebrates

[13] To undertake these initiatives, Catchment Advisors utilise equipment which includes 6 stream health assessment kits, clarity tubes and kick nets that the community can access.

Staff also have engaging materials such as an enviroscape, and metal fish that are installed on the kerb for the “adopt a drain” urban stormwater programme.

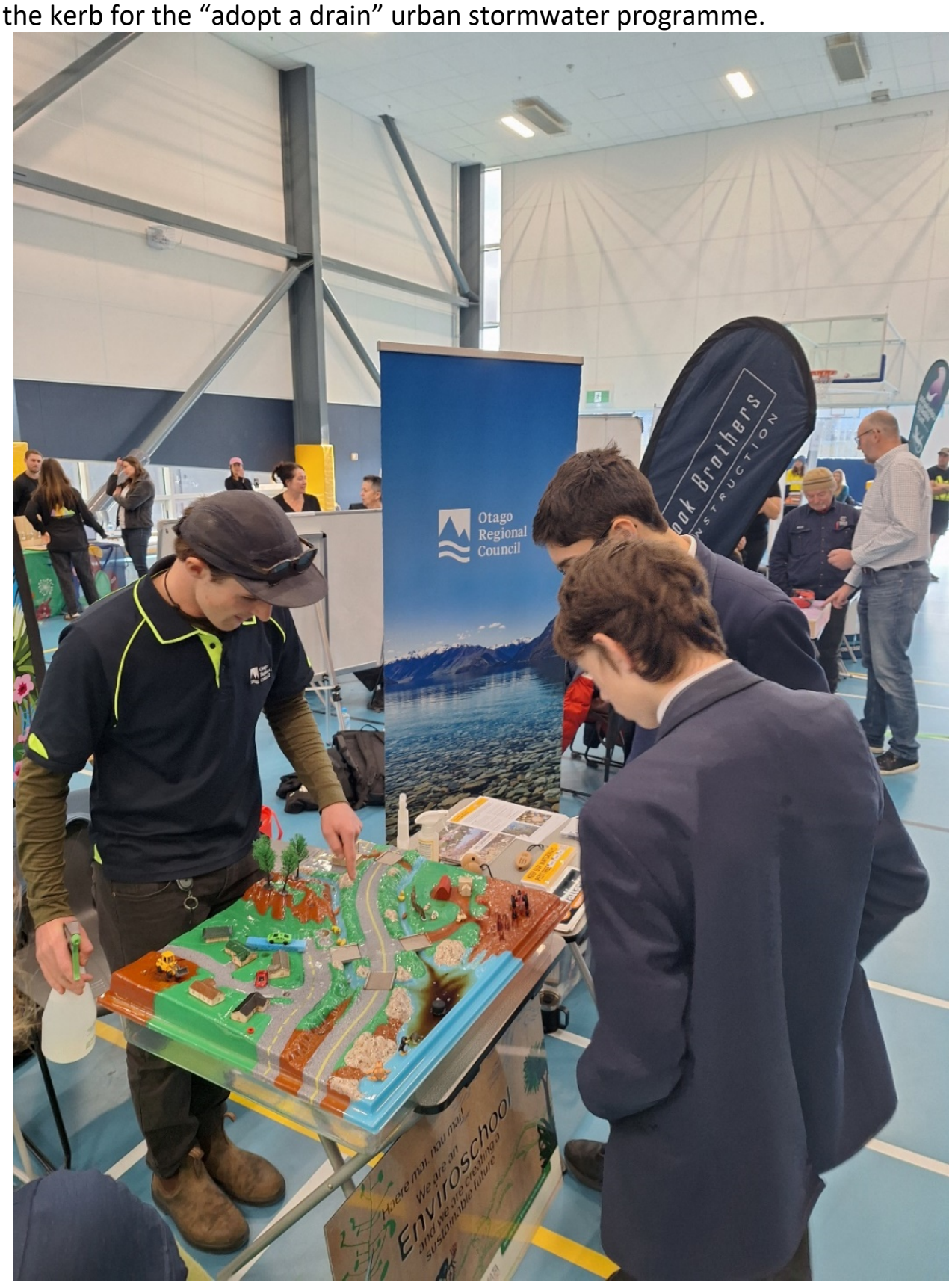

Image 2: Catchment Advisor demonstrating the enviroscape to high school students.

[14] The Catchments Team has also been actively supporting various programmes across Council. These include Integrated Catchment Management (Catlins, Hāwea and the Upper Lakes), Strategy and Policy work such as the Land and Water Regional Plan; Air Plan public consultations as well as supporting and collaborating on educational efforts with Enviro Schools. The Team have also contributed to the ECO Fund by completing site visits and building relationships with recipients, providing support and advice to potential applicants and increasing awareness of the ECO Fund by attending 13 funding clinics across the region. Catchment Advisors are also available to discuss projects with potential applicants throughout the year.

[15] The team have also supported several priority projects, including Wai Whakaata (Lake Hayes), Tomahawk Lagoon, Lake Tuakitoto, and the Toitū Te Hakapupu Restoration

Project. Additionally, the team have also supported Consents, Compliance and Science teams work programmes.

[16] The team supports a wide range of community and catchment groups across Otago. Their aim is to build relationships, trust and capacity for change within local communities, with the goal of fostering a collaborative and community-led approach to environmental management. Some of these key groups include Manahuerekia Catchment Group, WAI Wānaka, East Otago Catchment Group, Pomahaka Water Care Group, Wānaka Catchment Group, Whakatipu Reforestation Trust and Southern lakes Sanctuary.

[17] The team is also aligned and works closely with the Otago Catchment Community (OCC). The Catchments Team Leader and the OCC Regional Manager meet monthly to discuss opportunities for collaboration and alignment. The aim of these meetings is to minimise duplication, enhance collaboration, and ensure alignment of work programmes to optimise resource efficiency and support the Otago community effectively.

[18] The 2024-25 work programme (Attachment 1) focuses on building strong community relationships, empowering local initiatives, and ensuring effective communication of regulations/ best practices to landowners and community groups across the region. The key focus areas include Project Support, Stream Health Support, Biodiversity Support and specific work in both urban and rural areas.

Project Support

[19] The aim for the project support focus area is to support ORC priority projects to successfully meet their deliverables and create further opportunities within the specific project areas. Table 1 below provides a list of ORC led projects that the Catchment Advisors are actively supporting.

Table 1: Priority projects supported by Catchment Advisors

Priority Projects	Desired Outcome	Key Actions
Lake Tuakitoto	• Successfully support the project team to meet their KPIs. • Outside of the project the community and environment are supported.	• Support of Project Managers and Project Delivery Specialists - events, communications and education around onsite waste management.
Tomahawk Lagoon	• Priority projects are delivered to a high standard / successful. • Outside of the project the community and environment are supported.	• Plan and implement community days and events. • Plan and implement the Adopt a Drain programme.
Te Hakapupu	• ORC projects are positively promoted. • High attendance and	• Supported planting days. • Held public info days on the project. • River Watch Waka – maintenance.

	engagement at events. • Outside of the project the community and environment are supported.	
Lake Hayes	• Priority projects are delivered to a high standard / successful • Outside of the project the community and environment are supported.	• Support actions from the Wai Whakaata strategy. • Support Friends of Lake Hayes and other active groups.
Tiaki Maniototo / Living Manuherekia	• Support delivery of these Central Government projects so they are successful and relationships with these communities are enhanced.	• Support the organisation of community engagement events, such as the Tiaki Maniototo "bio blitz" and Taieri Wai festival. • Refer any project relevant queries to the Project Manager. • Attend TAG and AGMS and answer queries where appropriate. Provide feedback to relevant teams at ORC.
ECO Fund	• Ensure ECO Fund Delivery Lead is supported	• Conduct check in site visits with fund recipients and report back on progress to ECO Fund team. • Attend funding clinics to promote fund across the region. • Offer support and guidance to fund recipients and potential applicants.
Integrated Catchment Management	• Ensure consistent messaging and reduce overlap of work programmes. • Attend all meetings with the ICM team and wider community.	• Attend all community ICM meetings. • Support ICM team and community as required. • Support projects that deliver or support strategies in the CAPs. Specifically, Catlins, Hawea and Upper Lakes.
Dairy Effluent & Intensive Winter Grazing	• Community is aware of up-to-date regulations and are actively participating in recommended best practice.	• Raise awareness of regulations through workshops in relevant areas. • Develop & implement minimum of 3 'Farmer' Events. • Develop and implement 6 Intensive Winter Grazing workshops. • Collaborate with MPI – produce a 2025 IWG flyer + mailbox drop. • Collaborate with industry to ensure that correct information is being relayed to farmers and support them where required. This includes DairyNZ, Fonterra, Beef and Lamb etc.
Hill Country Erosion	• The Project is impactful and successful, made stronger through the local knowledge and connections contributed	• Meet with project manager as requested. • Connect the project manager to local community/landowners around the

	through the Catchments Team.	region. • Support with any planting days in the future.
ORC Science Team Support	• Support the science team where possible and connect them to the community to communicate science work.	• Science Road show supports the science team to communicate their work to the community in an educational way. • Facilitate access to local stakeholders/landowners. • Create a list of potential 'new' projects for each FMU. • Work with Science on Hotspots / new impactful projects and create a list of potential 'new' projects for each FMU.
Water Allocation Support (In times of low flows)	• Support wider ORC to know and understand all water users/groups in Otago. • Support wider ORC to Mitigate impact of low flows - on ecosystems and users.	• Where appropriate, facilitate and support the adoption of best practice flow sharing within the community. • Support a high-level communication with water management groups to mitigate impact of low flows.

Stream Health Support

[20] The aim of this workstream is to enhance understanding and best practices related to stream health by providing individual and group workshops, updating resources, and engaging with schools and community groups to educate and build community capacity for community-led stream health enhancement. So far in 2025, the Catchments team have carried out 12 stream health checks across Otago, participated in two Community World Wetland Day events (Bullock Creek and Thompson Creek) and have education sessions lined up with primary schools in both Central Otago, and Dunedin.

[21] There is great engagement around this workstream from the community.

Biodiversity Support

[22] The aim of this workstream is to promote and enhance biodiversity in the region through workshops on managing native biodiversity on farms; developing biodiversity management plans that align with industry assurance programmes, and supporting nurseries and propagation efforts within the community.

[23] The Central Otago Catchment Advisor is supporting the Waiora Manuherekia project to develop wetland management plans for 10 farms in the Manuherekia Catchment. This will lead to ongoing support from Catchment Advisors by monitoring wetland health and advising interested landowners on wetland restoration.

[24] Using successful methods transferred from stream health assessments, Catchment Advisors help landowners understand the importance of protecting and enhancing native biodiversity. The Catchments Team plan to create a template to support landowners to write their own biodiversity plans, or conduct biodiversity assessments. This programme is similar to the stream health assessments work we undertake with a

biodiversity/land focus. The template will align with the biodiversity section in NZFAP+. Catchment Advisors will assist landowners in understanding the importance of protecting and enhancing native biodiversity in a consistent manner. This approach will encourage landowners to develop biodiversity management plans that align with industry standards whilst also promoting collaboration with their relevant industry partners to ensure comprehension and effective biodiversity protection,

[25] Workshops on managing native biodiversity on farms will include a presentation from a Catchment Advisor, followed by a visit to a local example of native biodiversity on farm. The Catchment Advisor will facilitate discussions on enhancing biodiversity and what the threats to maintaining and enhancing biodiversity are.

Urban

[26] The urban programme focuses on education and awareness, with the aim of improving urban water quality and reducing pollution by implementing the "Adopt a Drain" programme both in the community and in schools. The progamme focuses on raising awareness about stormwater impacts, drawing the connection between the drain and what lives in the stream (macroinvertebrates, eels and fish) and supporting urban action groups to undertake local projects in a bid to better understand their local environment and how to mitigate their impacts.

[27] The Adopt a Drain Programme is currently underway in the Upper Clutha where Catchment Advisors are supporting WAI Wanaka. The next phase of this project is to implement Adopt a Drain in Queenstown, Alexandra and Dunedin (starting with Tomahawk Lagoon). The Catchments Team are also attending the Wanaka A&P show in March, with a focus on stormwater awareness and the Adopt a Drain programme.

Rural

[28] The rural programme goal is to support rural communities in implementing best practices for water and land management by conducting workshops, providing one-on-one support/advice and delivering educational resources to landowners/occupiers around the region. The 2025 rural engagements include 6 Intensive Winter Grazing workshops, the repeat of the Intensive Winter Grazing flyer in collaboration with MPI (after the success of this in 2024), ongoing advice on dairy effluent, working with the science team to explore winter grazing alternatives and the planned attendance at 7 rural A&P shows.

[29] The 2025/2026 financial year work programme is currently being refined and developed, based on the successful elements of the 2024/2025 work programme. Discussion with parties on the work programme will take place, to ensure there is alignment and to avoid duplication. Progress on implementing the programme will be reported on during the council's quarterly reporting process.

CONSIDERATIONS

Strategic Framework and Policy Considerations

[30] The Catchment Advisor work programme aligns to the ORC Strategic Directions by aligning to the communities and environment focus areas.

Financial Considerations

[31] There are no financial considerations.

Significance and Engagement

[32] Engagement is a key aspect of the catchments team role. This paper does not trigger any further significance or engagement considerations.

Legislative and Risk Considerations

[33] There are no legislative or risk considerations resulting from this paper.

Climate Change Considerations

[34] There are no specific climate change considerations for this paper. The work that is delivered by the catchments team does however support climate change resilience and outcomes if behaviour change is achieved.

Communications Considerations

[35] Work is ongoing with the communications team to share the work the team achieves alongside that of the community.

NEXT STEPS

[36] Continued delivery of the 2024/25 Catchments team-work programme and development of the 2025/2026 programme before the new financial year.

ATTACHMENTS

1. High level WP 2025 [**9.3.1** - 1 page]

ORC Strategic Alignment	The Catchments team and associated work programme connects to the ORC Strategic Directions by aligning to the communities, partnership, climate and environment focus areas. Through this work programme we are providing leadership in communication, coordination, education and collaboration to support behaviour change to enhance the environment. We have sought input from the community and industry to develop and enhance our work programmes and will continue to do this. We also enable healthy biodiversity through collaboration with landowners, communities and industry and provide advocacy, education and collaboration to support improved environmental management.		
Catchments Team's Guding Principles:	**Building Relationships** **(Meaningful Engagement)**	**Community Catalyst** **(Empower and activate the community for community-led solutions)**	**ORC Responsibilities** **(Sharing Regulations & Information)**
Programme	**What Do We Want To See - Desired Outcomes**	**Goal**	**Key Actions**
Project Support	**PRIORITY PROJECTS** Project Delivery Specialist's' are supported Priority Projects are delivered to a high standard / successful ORC projects are positively promoted Use collateral to develop programs that can be used anywhere in Otago Additional actions are identified and implemented **ECOFUND** Ensure ECO Fund Delivery Lead is supported Generate reports back to ECO Fund Lead - supporting applicant / Fund **INTERGRATED CATCHMENT MANAGEMENT** Ensure consistent messaging and reduce overlap of work programmes Support ICM team where needed Community are aware of process **DAIRY EFFLUENT** Community are aware of up to date regulations and are actively participating in recommended best practice **HILL COUNTRY EROSION** **ORC SCIENCE TEAM SUPPORT** Fish Passage Soil Health Projects of impact Science Roadshow **WATER ALLOCATION SUPPORT** (In times of low flows) High levels of communication with the right people at the right time Know and understand all water user groups in Otago High level of communication with water management groups t o mitigate impact of low flows All low flows managed well	Determine deliverable requirements - type, dates etc Support of Project Managers and Project Delivery Specialists - events, comms etc Plan and implement community days and events High attendance and engagement at events Be creative in Engagment / Delivery Meet project managers and community expectations Attend funding clinics to promote fund Develop good reporting with EcoFund team Attend any site visits to assist with Funding Applications Visit ECO Fund applicants and produce report per applicant Attend meetings with the ICM team Identify any quick actions As CAPs come online, support projects that deliver or support strategies in those CAPs Raise awareness of regualtions through workshops in relevant areas Raise awareness of recommended best practice management Reduce contaminants entering waterways through GMP Support project Provide support and access stakeholders / landowners Provide support and access stakeholders / landowners Work with Science on Hotspots / new impactful projects Science engagement Know and understand all water users / groups in Otago Mitigate impact of low flows - on ecosystems and users Meet with all internals and gather all ORC intel Map irrigation and water users / groups in Otago Identify gaps in knowledge for ORC Understand how water users are working togehter and how regualtions and ORC can enhance and give greater power to the community	Develop plans/events that support : (as requested) Lake Tuakitoto Tomahawk Lagoon Te Hakapupu Lake Hayes Tiaki Manototo ™ / Living Manuherekia Work with Funding Co-ordinator Attend atleast 4 funding clinics per year Attend all EcoFund Applicants and generate report Attend any enquiry Attend all ICM meetings in given area (currently: Hawea, Catlins, Upper Lakes) Facilitate tables / groups as requested Support ICM team and community as required Develop & implement minimum of 3 'Farmer'Events Develop & implement minimum of 2 'Rural Professional' Events Meet with project manager as requested (in yr1) Meet with project manager & create a yearly plan Create a list of potential 'new' projects for each FMU Take to Catchment Groups & OCC & EcoFund Co-ordinator Support the science team to bring their research and ORC data to the community around Otago via a series of community drop-ins and presentations Support ORC departments (consents, compliance), landowners, water allocation groups and catchment groups when required to achieve best practice flow sharing
Programme	**What do we want to see - desired outcomes**	**Goal**	**Key Actions**
Stream Health Support *(whole of Catchment)*	Good Understanding of Stream Health best practice Share knowledge & provide GMP on : Fish passage, stream maintenance, biodiversity, biosecurity, riparian planting, sediment, fish, invertebrates, marcophytes, periphyton ... Prioritisation of actions based on science (SHC) Identify Biodiversity Clear Guidance on Stream Health Checks Resources are readily available Kits and guides available to all interested groups / people All CA are trained and skilled to deliver SHC's and train others Relevant knowledge is shared to the community	Resources available throughout Otago All schools / groups have access to a kit / guides All schools / groups have access to our experts and resources Develop a community plan for Stream Health Checks People know where to go for kits and advice - CA's and link to understading the Environmental Data Portal Have good base knowlegdge in the community - or where to go to get it Inspire conversations around biodiversity enhancements, fish passage / barrier discussions, riparian planting whilst out doing stream health checks Offer One;One's where needed Provide Workshops to all groups / schools Inspire evidence based actions Focused engagement leads to better understanding and increased actions Link to ORC science team i.e. eDNA, fish passage program	Update 'Stream Health Check' resources with industry standards Keep up to date with Science / Industry bodies OL&W / CBM Run atleast 4 workshops or minimum of 1 workshop per FMU/Rohe ID 'new' potential project areas In the field (on farm and with community groups) capacity building for Stream Health Assesments (1:1 or with groups) Share knowledge & provide good management practice on : Fish passage, stream maintenance, biodiversity, biosecurity, riparian planting, sediment, fish, invertebrates, marcophytes, periphyton
Programme	**What do we want to see - desired outcomes**	**Goal**	**Key Actions**
Biodiversity Support (whole of Catchment)	Greater understanding of current biodiversity- then enhance, restore and or develop Identify current nurseries/tunnel houses and empower a program to utilise these sites Share how to identify what biodiversity is present and how to manage it. May include a field trip with CG members to look at a biodiversity example in their catchment. Basic plant ID exercise. Inside = present 'Biodiversity on Farms' slideshow Share how to eco source seeds and how to propagate. Field trip during summer to collect seed. Workshop with expert on propagating Share how to understand planting plan principles - where to plant Share how to manage weed and pests around plantings Increases area of protected and enhanced streams and wetlands Greater understaing of FWFPs and the links to biodiversity Greater understanding of ecosystem / biodiversity benefits Empower communities with inspirational ideas / concepts i.e. biodiversity stepping tones or corridors and small on farm sediment traps & dealing with the issues at the source Genuine passion for protecting and restoring indigenous biodiversity. Biodiversity is seen as a vital part/priority of farm planning and is incorporated into everyday life on the farm	Greater understanding of the steps that indivisals can take to create a impact in their catchment Attend field days to learn about catchment, farm systems to ensure the program is appropriate Develop a list of appropriate experts for each FMU/Rohe Develop a list of appropriate nurseries / experts to support each FMU / Rohe	Develop biodiversity management plan template to assist landowners in understanding and managing their native biodiversity. This will align with industry requirements Scope Urban biodiversity enhancment opportunities - using Beacon Point Wetland in Wanaka as a pilot site Offer one:one sessions to work through biodiversity management plans and talk through options, such as riparian planting and critical source area management Offer site visits to give a broad over view of the native biodiversity already present on the property Workshops alongside NZ Forestry Association Te Uru Rakau Provide biodiversity workshops in the 5 FMU (includes 'biodiversity on farms' David Norton presentation, and field trip to look at a local example Provide relevant resources about biodiversity
Programme	**What do we want to see - desired outcomes**	**Goal**	**Key Actions**
Urban **Adopt a Drain** **Urban Action Groups**	Protected freshwater ecosystems from all urban environment contaminants High level of understanding from urban communites (school, home, work) of their impact on freshwater and how to mitigate them Awareness of actions and implications on the environment Change of behaviour (long term reduction in behaviour that leads to polluted freshwater from 'urban lifestyles' and land use Community-led approach to urban freshwater enhancment	Develop and deliver stormwater programme to schools and urban communities. Interactive programe developed that includes Adopt a Drain and microplastics awareness Urban Stormwater messages delivered to communities to reduce contaminants in streams Identify and support Urban Action Groups where applicable	Adopt a Drain Programe Community - fish on drains - Coms through GIS map Adopt a Drain Programe Schools - 3 sessions each school 1. What is SW (enviroscape session) 2. Connecting the drain to the end of the pipe (macro inverts) 3. Adopting the drain at their schools (drilling on the fish) + tangible actions to mitigate SW pollution
Programme	**What do we want to see - desired outcomes**	**Goal**	**Key Actions**
RURAL **Freshwater Farm Plans** **Intensive Winter Grazing** **Effluent Management**	Correct ID of Risks - Slope, Rainfall, Soils, Land Use Class, Production capacity etc Impactful ID Mitigation / GMP options that are avialabale and understand modelling is just a tool ID Actions - bassed of prioritising easy, affordable through to most impactful per $ spent High Levels of awareness and support for FWFP/best practice High awareness of available tools and resources Reduced Sediment / E.Coli in Waterways Assist farmer to identify improvments to winter grazing practices Assist farmers to correctly identify CSA's and establish mitigations Educate industry professionals & create common understanding / consistent advice to farmers Influence GMP on farm Increased Buffers & CSA's protected Ensure strong understanding and therefore correct advice is given to 'industry' farmers Ensure next season's understanding are improved - high compliance rate Attendance and interest in community workshops High level of farmers completing an IWG Management Plan Influence the group with GMP advice Offer programmes i.e. stream assessment leading to mitigations / workshops available Higher level of awareness - with reference to DEM and Stock holding and Silage Good management practice is understood - adequate storage and discharge Workshops in key areas to raise awareness Ensure no surprises for Dairy Farmers	High level of engagment with Famers across Otago Aware of available resources Find an example farm and promote pathways they used - farmer to farmer Ensure we are up to speed with regualtions and resources as these are updated/changes rolled out Run workshops with specific CG / Farmers across Otago Workshops provided in all FMU's - Rural Professionals and Farmers Provide One:One's as requested, contractors, farmers & Rural Professionals High level of attendance at workshops Share Science modelling Share Mitigation options Assist with what options are appoprpiate for each system Every farmer to have an IWG Management Plan Create a presentation that all ORC staff use for IWG - be consistent Responding to referrals and enquiries consistenly - internal and external Update grazing management plan yearly to ensure it remains relevant and simple to follow Ensure landowners understand the rules, regulations and good management practices Reduce E-coli in fresh water Attend dairy discussion groups - and offer information Good laison with Dairy NZ Liaison with Fonterra etc	Specific actions to be updated to reflect any new policy/regulation in this space Promote good management practice on desired outcomes section Minimum 6 farmer workshops or 1 per FMU/Rohe Minimum of 5 Rural Professionals Workshops Scope geographic areas for future effluent management workshops Ensure all necessary liaison undertaken with ORC Regulatory teams before, during and after events Create informative handouts for events Liaise with industry representatives to promote event amongst farmers Liaise with ORC Consents & Compliance & Industry to deliver a workshop focussing on Animal Effluent

9.4. Avian Flu Response

Prepared for:	Environmental Implementation Committee
Report No.	GOV2481
Activity:	Governance Report
Author:	Libby Caldwell, Manager Environmental Implementation and Robert Win Team Leader Biosecurity
Endorsed by:	Joanna Gilroy, General Manager Environmental Delivery
Date:	5th March 2025

PURPOSE

[1] To update the Environmental Implementation Committee on High Pathogenicity Avian Influenza (HPAI) and ORC's role if HPAI is found in New Zealand.

EXECUTIVE SUMMARY

[2] Avian influenza (also known as bird flu) is a viral disease of birds that is found across the globe. Biosecurity New Zealand (BNZ) and the Department of Conservation (DOC) are monitoring the situation as HPAI transfers throughout the world. BNZ is the lead agency, supported by DOC in coordinating the interagency preparedness programme for Aotearoa New Zealand.

[3] Regional councils' role is to provide regional coordination between councils and territorial authorities to ensure information is effectively disseminated.

RECOMMENDATION

That the Environmental Implementation Committee:

a) ***Notes*** *this report; and*

b) ***Endorses*** *the work the staff are doing to prepare for Council's role in any response co-ordinated by BNZ and DOC.*

BACKGROUND

[4] Avian influenza, also known as bird flu, is a viral disease that mainly affects birds. However, it can also spread to mammals – including people (only in rare cases). There are 2 main types of avian influenza:

a. high pathogenicity avian influenza (HPAI), which can cause severe symptoms and high death rates in birds. There are several strains including H5, H7, and H9; and
b. low pathogenicity avian influenza (LPAI), which typically causes few or no symptoms in birds but can possibly mutate to HPAI.

[5] In 2020, a new H5N1 strain emerged in the northern hemisphere. It established in wild birds and then started to spread globally. In 2023, it was detected in the Southern Hemisphere and since then it has spread to South America and Antarctic peninsula. This strain can infect a broader range of wild birds and spread across a larger geographical range than other strains have. It can cause high death rates in poultry (chicken and turkeys), waterfowl (ducks, geese and swans), shorebirds (godwits, stilts and plovers)

and seabirds (gulls and terns). It has also been found to spill over to more than 60 species of mammal, including marine mammals, companion animals and livestock. It can also spread to humans on rare occasions, with several cases occurring in the USA and South America.

[6] If this strain arrived in New Zealand, it could be spread by direct contact between infected and healthy birds, or through contamination of equipment and materials including water and feed. Currently Australia and the Pacific Islands remain free from H5N1 and the likelihood of it coming to New Zealand on pathways that BNZ manage is low. Unlike many biosecurity threats, H5N1 is not expected to be brought to New Zealand by human activity, but by migratory wild birds. There is still little understanding about the risk of it reaching New Zealand through migrating birds, but BNZ are monitoring how the disease affects wild birds in the Southern Ocean which may have migrated from South America or Antarctica. For this reason, BNZ predicts that it is not likely that it could be kept out of New Zealand over the long-term or eradicated once it establishes in the wild bird population.

[7] A strain of avian influenza, HPAI (H7N6), was detected at an Otago egg farm in December 2024. This strain is likely to have developed from interactions with local waterfowl and wild birds with LPAI. While the Otago outbreak is not the H5N1 type circulating among wildlife around the world that has caused concern, BNZ took this outbreak seriously, depopulating the infected egg farms and have to date eliminated this strain of avian influenza.

DISCUSSION

[8] For any outbreak of avian influenza, including H5N1 BNZ (supported by DOC) are coordinating the interagency preparedness programme. The key focus of this programme, will centre around:

a. minimising its impact on the domestic poultry industry;
b. protecting highly threatened species (including vaccinations for a few); and
c. managing public health risks.

[9] The phases of the HPAI programme are:

a. Phase 1: Preparing for arrival (NZ is currently here);
b. Phase 2: Preparing more widely (Arrives in Ross Sea, Australia, Subantarctic Islands);
c. Phase 3: HPAI is detected in NZ; and
d. Phase 4: Living with HPAI

[10] All of the above stages will be led by BNZ and supported by DOC.

[11] Under the Memorandum of Understanding between BNZ, DOC and Te Uru Kahika the Regional Councils' role in response to any HPAI outbreak is to provide regional coordination between councils, territorial authorities and central government to ensure information is effectively disseminated to landowners and managers of public spaces (public reserves) where sick/dead birds could come into contact with people.

[12] To prepare for the arrival of avian influenza and ORC's role in co-ordination of the response staff have purchased equipment for HPAI specific decontamination kits that will be distributed to biosecurity staff and regional depots, which will be utilised in the event of a HPAI outbreak. As part of Otago's coordination of information, Biosecurity staff have met with key contacts within Territorial Authorities (District and City councils) (TA's), DOC, Fish and Game and the Ministry of Health in the Otago Region. ORC staff have set up an online 'team' within our region for ease of information flow. In the event of a HPAI outbreak biosecurity staff will coordinate with Otago Civil Defence on any regional response.

[13] Biosecurity staff have been involved in several meetings with central government agencies to ensure that we are as up to date and prepared as possible for avian influenza. This has also been important in determining what roles each organisation will play in a response situation. The role of ORC will be to ensure that there is information flow to communities, TAs and other organisations with interest. Staff have also indicated that if support is required to manage sick/dead birds and the community interactions with these staff will support where possible.

[14] Management of any issues with dead or sick birds will need to be done at place. Advice is for TA's, MOH and DOC to utilise their normal channels to work with mana whenua. This can be discussed within regional coordination teams.

[15] ORC staff are utilising Te Uru Kahika as a single point of contact with government agencies, and they are setting up a small working group with central government. The plan at this stage is for this group to oversee the preparedness phase and communications.

[16] Communication and the development of resources will largely be developed and led by BNZ and DOC. It is important to note that this is a work in progress, and the aim is to have one source of information available to everyone. Council staff will work to share this information and if needed make it relevant to the Otago context.

[17] Detection of avian influenza early is important to limit the spread of it. One of the first signs of it arriving is unexplained deaths of several birds. The key message to the public is that if people see three or more sick or dead wild birds in a group, it is to be reported immediately to the exotic pest and disease hotline on 0800 809 966 and provide as much detail as possible about what is observed and the location. Advice is to not handle or move the birds. Further information is available on the BNZ website and as this develops it will be communicated through BNZ.

CONSIDERATIONS

Strategic Framework and Policy Considerations

[18] This paper does not trigger policy considerations.

Financial Considerations

[19] Staff have purchased HPAI decontamination equipment for vehicles and depots out of existing operational budgets. No further budget is anticipated to be required to deliver this work at this time. Staff time and more decontamination equipment will be required if a response is required.

[20] BNZ staff have advised that if there are any significant issues with resourcing as we move through the preparedness phases, we should raise it at a regional level to discuss with central government.

Significance and Engagement Considerations

[21] This update is consistent with the Council's Significance and Engagement policy.

Legislative and Risk Considerations

[22] This paper does not trigger legislative or risk considerations.

Climate Change Considerations

[23] No direct considerations related to climate change.

Communications Considerations

[24] Communications will be led by BNZ with support from DOC. The Environmental Implementation Team will work with the Communications Team in this space.

[25] Updates will be provided through to the Environmental Implementation Committee.

NEXT STEPS

[26] Staff will continue to work with BNZ, DOC, Territorial Authorities (District, City and Unitary councils) (TA's), Mana whenua, Fish and Game and the Ministry of Health in the Otago Region to coordinate information flow.

[27] If H5N1 arrives in Otago, staff will work closely with the regional coordination group and will provide support where and when is appropriate.