

# Mid Dome Wilding Conifer Management Strategy 2023 – 2033

Reclaiming Mid Dome – We Are Halfway There!



**Cover photograph:** Aerial view of the mid Tomogalak catchment (Five Rivers 2 operational area), showing the scale of prior, recent and future wilding control. The ‘brown ring’ of sprayed conifers (middle distance) surrounds the aerial control loading site, which has created significant operational efficiencies since it was located here in 2016. Photo source: BBSL, Nov 2022.

<b>Reference:</b> Mid Dome Wilding Conifer Management Strategy 2023 – 2033. Reclaiming Mid Dome – We Are Halfway There!		
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<b>Reading this strategy</b> Although a standalone document, this Strategy should be read in conjunction with the New Zealand Wilding Conifer Management Strategy (2015–2030) and the operative Southland Regional Pest Management Plan (2019-2029), for a broader context.		
		

Disclaimer

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## EXECUTIVE SUMMARY

This is the third Mid Dome Wilding Conifer Management Strategy (the Strategy) and covers the period 2023 to 2033. The Strategy has been prepared for the Mid Dome Wilding Trees Charitable Trust (the Trust) to help deal with significant changes in their operating environment over the next decade. The Trust has made much progress in both initial and maintenance control of wilding conifers at Mid Dome over the past 17 years. However, the project is only half way completed. This work needs to continue until seed banks are depleted and the way ahead has been prepared for the full transition of control to land occupiers.

This Strategy's overarching goal is that *Wilding conifer infestations are at zero density (being no coning trees present) across the Mid Dome operational area by July 2033*. In the next decade significantly more maintenance control work will have occurred, building on prior years of successful control, and the majority of ongoing conifer management (of up to conifer 11 species, including *Pinus contorta*, *Pinus mugo*, Corsican pine and Douglas fir) across the 70,000 hectare operational area will have transferred to land occupiers.

The cost for completing this work is approx \$20.5 million (not inflation adjusted). This is additional to the \$17 million expended prior (2006 to 2023). The project is half way completed and we need to 'finish the job'. Six key issues impact on the work that lies ahead:

1. Adequate national and regional funding is required to maintain the gains of extensive prior control to see the project through to completion (that is, handing back of all maintenance control obligations to respective land occupiers).
2. Reinvasion by wind-blown seeded wildings, particularly Douglas fir, from forestry plantations outside the management area, is already undermining control efforts by the Trust. Addressing the risk of further spread from these plantations and shelterbelts is a priority to investigate further.
3. Transitional arrangements need to be developed to enable movement from initial and maintenance control by the Trust to full maintenance control by occupiers, via practical and individually prepared Biosecurity Management Plans (BMPs) under the Southland Regional Pest Management Plan (RPMP).
4. Working with Environment Southland (ES) is essential to ensure that the Council embraces their biosecurity leadership responsibilities of occupier engagement and advocacy, monitoring to ensure RPMP rules are being followed, and instigating enforcement action when required.
5. Balancing environmental and operational requirements, such as considering reducing setback requirements from water courses, case by case, to allow more efficient aerial boom spraying, and better identification and mapping of significant biodiversity sites on public conservation land to allow for more targeted control of wildings in these areas.
6. Maintaining the capacity and capabilities of efficient aerial and ground control contractors to carry out the required work.

Despite many achievements there are significant challenges ahead which need to be addressed:

- No surety of ongoing national funding post 2023.
- Maintaining landowner engagement to continue 100% commitment to the programme and ensuring they don't become exacerbators with forests or shelterbelts on their land.
- Supporting ES to develop a robust monitoring programme for land that has transitioned to land occupiers and putting time into BMP development with occupiers.
- Lifting the public profile and re-galvanising local support for the project. More iwi dialogue is also needed, especially around support for maintaining funding levels.
- Development of practical 'handover to landowner' control protocols.
- Agreements with commercial forestry on their responsibilities for wilding conifer control.
- Regulatory powers in the Southland RPMP regarding wilding conifers are untested.

This Strategy is aspirational and sets new goals and objectives, primarily around anticipated and progressive completion of work in the 22 operational areas, and importantly provides a set of financial projections for the next project period. The preferred funding scenario to 'complete the job' is \$20.5M. Eighteen recommendations are made which are grouped into four issues (relationships, funding and strategy, operations and internal matters), including:

- The need for multi-year funding commitments from stakeholders – MPI, DOC, LINZ and ES to ensure that the preferred model is budgeted. *Without the ideal scenario level of support it is inevitable that control objectives and momentum will slip.*
- Lobbying / engaging with plantation forestry interests (commercial and farmer based) in Southland District impacting on or likely to impact Mid Dome operations.
- The need for more formalised landowner transition plans to be developed by ES that outline the conditions of maintenance obligations on landowners/occupiers.
- Maintain contractor resources and quality assurance in contracting processes.
- The need for MPI to urgently finalise transitional control criteria coupled with the need for a long term post transition regime to ensure that the wilding problem does not remerge from other sources. Government and regional agencies need to lead this.

In conclusion, the consequences of not completing the project, or underfunding it, are dire, not just for Mid Dome but also inter-regional (and national) impacts from the potential spread of seedlings far beyond the 70,000 ha. project area. These effects would be felt on pastoral production, natural biodiversity values, water yield, increasing risk of fire and numerous social and cultural values. If the significant tussock grasslands, mountain range vistas, and biodiversity of northern Southland are to be preserved, addressing the ongoing and new wilding conifer threats at Mid Dome must be stepped up with some urgency.

This Strategy looks toward a definite end point for the Project and provides direction for this to occur. Projected costings and timings are made on the basis that the resources needed will be available – ie. a best case scenario. The Trust has come a long way since 2008, and *“while we are half way there, this document is a clear plan as to how we will complete the job”*.

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**Contorta seedlings from the Five Rivers 3 operational area. The seed source is likely to be from coning trees on Five Rivers 2, therefore within the Mid Dome MU. This helps to demonstrate the seed bank and seed rain issues faced by control operators. Photo: Boffa Miskell Ltd.**

# 1 INTRODUCTION

## 1.1 Background

The Mid Dome Wilding Trees Charitable Trust (the Trust) has been overseeing the management and control of wilding conifer trees in the Mid Dome and Flagstaff Management Units (collectively referred to as 'Mid Dome') of northern Southland since 2006. Oversight is provided through a high-level Wilding Conifer Management Strategy (the Strategy) which sets the vision and goals for the Trust and contains implementation and business objectives and details.

The previous strategy (2014-2024) covered core work of controlling primary and secondary seed sources of *Pinus contorta* and *Pinus mugo* as these are the key legacy species. The Strategy was reviewed in 2018, however there has been much progress on control and significant changes in the operating environment have occurred over the last five years (e.g. wilding Douglas fir, radiata pine and Corsican pine are creating more recent invasion problems). The next ten years will see another change in focus, from initial control to maintenance control and increasingly, handing back of ongoing control to landowners and managers (occupiers). Stepped up monitoring and compliance will be required, via Environment Southland's (ES) Regional Pest Management Plan (RPMP) rules, for controlling wilding conifers. The project will be considered complete when all control is handed back to respective land occupiers. The main thrust for this Strategy, for ongoing maintenance, is not to let wildings of any of 11 conifer species seed.

The Trust commissioned Better Biosecurity Solutions Limited to review the 2014 strategy and develop the next iteration of the Strategy (2023 – 2032). The end of the next decade signals completion of the project and that the Trust's work at Mid Dome 'is done'. The Trust is at a significant point in its evolution. After 17 years implementing control work there is much to celebrate. However, there are also concerns around how to maintain the current progression of control, while dealing with emerging threats not prominent prior (e.g. the rise of permanent pine forestry, changing generations on farms and competing for funding to maintain the significant gains of previous control).

## 1.2 Purpose and scope

The purpose of the Strategy is to outline what the end point of the Mid Dome project looks like and set out the framework and direction for how the 'control to transition' will be achieved. It focuses on achievable tasks, projected costings and timings of work and hinges on the basis that the resources needed are available (i.e. presenting a best case scenario). The scope included:

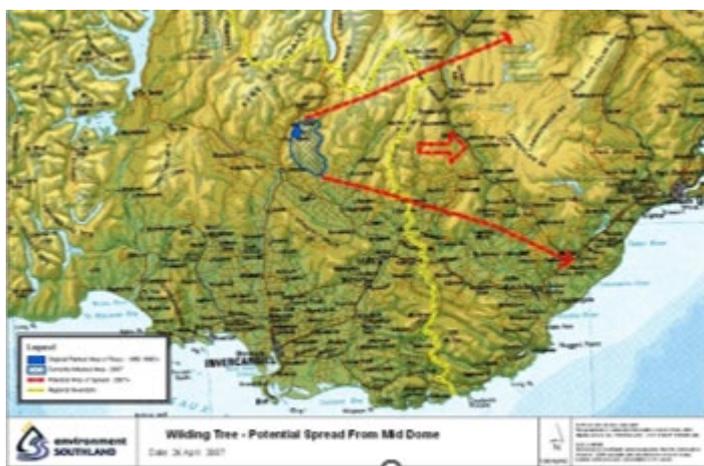
- Reviewing the 2014 strategy to identify gaps, shortcomings, and new issues to consider (e.g. advocacy and regulatory roles of ES through the RPMP).
- Establishing the current state of the Mid Dome Programme, through SWOT analysis, then identifying the desired future state/outcome sought.
- Defining specific strategic goals/milestones to achieve desired outcome, leading to specific operational plan objectives.
- Identifying financial and other resources needed to achieve the desired outcomes.
- Proposing monitoring methods to measure progress toward the goals and outcomes.
- Identifying GIS and other data required to undertake the tasks above.

One of the key issues to address is assessing the impacts of ‘high-risk’ conifer plantations outside (and upwind) of Mid Dome, creating seed spread risks into the Mid Dome project area. This occurrence is already starting to undermine the excellent control work achieved to date.

### 1.3 Mid Dome project area

The Mid Dome project area surrounds the Cupola and Mid Dome ranges in northern Southland, mid-way between Invercargill and Queenstown. The area features extensive alpine tussock, interspersed with fellfields, pastoral farmland and remnant beech forest. It is of moderate ecological importance, has high scenic and aesthetic value and is important for pastoral farming.

The area has considerable catchment management history (McCaskill, 1973) and legacy issues. In 1947, the Mid Dome Soil Conservation Reserve was established on the western edge of the project area and planted in 250 ha of *Pinus contorta*, supplemented by *Pinus mugo*, with the aim of preventing soil erosion. Both species are capable of spreading rapidly, and the open tussock grasslands to the east provided ample opportunity for their establishment (Figure 1).



**Figure 1: Location of Mid Dome within Southland and downwind spread effects of potential spread.** Source: Environment Southland.

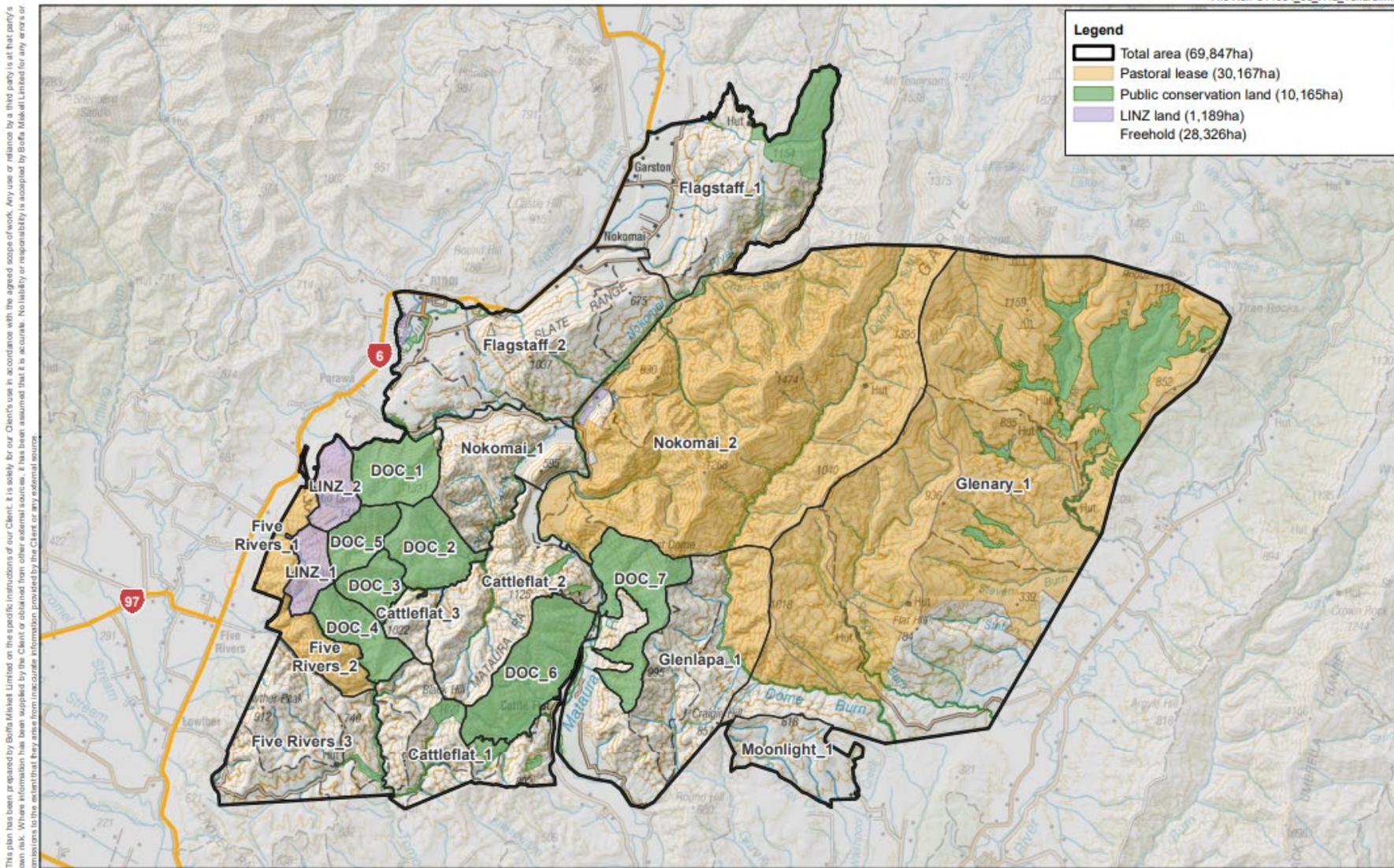
However, concern about the spread of wildings from the soil conservation reserve was raised in the 1960s, and a number of control initiatives were launched, including pastoral grazing at lower altitudes. By 1999 it was estimated wilding spread from the soil conservation reserve occurred throughout more than 13,000 ha. of the project area, and with scattered outliers further east of the Mataura River (Ledgard, 1999).

The current project area encompasses an area of 69,847 hectares and comprises a mix of land tenures (refer Table 1 and Figure 2a).

**Table 1: Mid Dome land tenure statistics**

Land tenure	Hectares	Proportion of project area
Pastoral lease	30,167	43%
Freehold	28,326	41%
Crown land*	11,354	16%
Total	69,847	100%

\*DOC = 10,165 ha; LINZ = 1,189 ha



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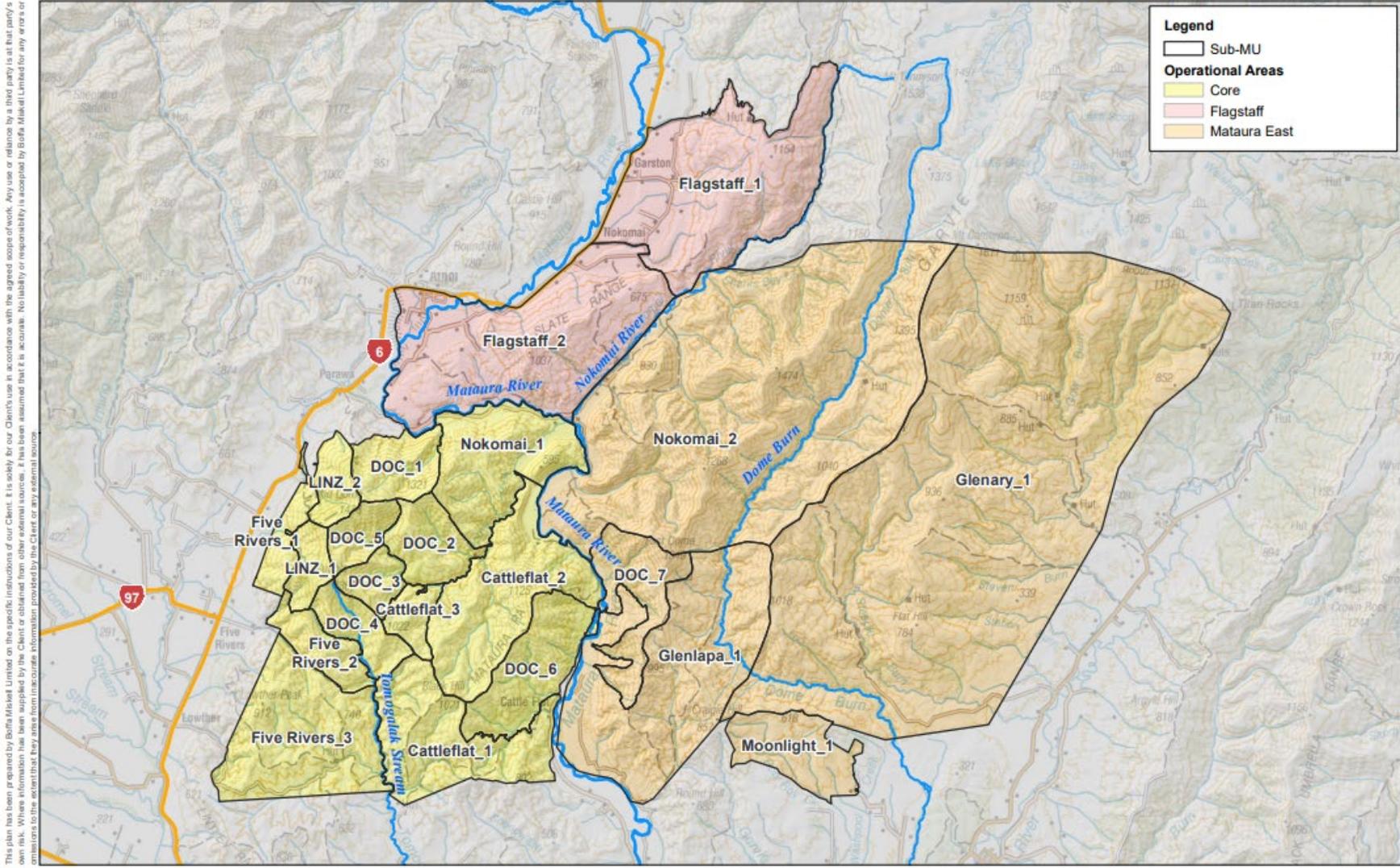
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Data Sources:  
Tenure sourced from LINZ data service  
Topo map sourced from LINZ 250 Topo Map Series  
Projection: NZGD 2000 New Zealand Transverse Mercator

**MID DOME WILDING TREES MANAGEMENT**  
Mid Dome Tenure

Date: 02 December 2022 | Revision: 0  
Plan prepared by Boffa Miskell Limited

Project Manager: marcus.girvan@boffamiskell.co.nz | Drawn: BMC | Checked: RPI

**Figure 2a: Mid Dome land tenure map, as at December 2022.**



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**Legend**

- Sub-MU
- Operational Areas**
- Core
- Flagstaff
- Mataura East



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Date Sources:  
Tenure sourced from LINZ data service  
Topo map sourced from LINZ 250 Topo Map Series  
Projection: NZGD 2000 New Zealand Transverse Mercator

**MID DOME WILDING TREES MANAGEMENT**  
Mid Dome Operational Areas

Date: 25 November 2022 | Revision: 0  
Plan prepared by Boffa Miskell Limited  
Project Manager: marcus.girvan@boffamiskell.co.nz | Drawn: BMC | Checked: RPI

**Figure 2b: Mid Dome Operational Areas, as at December 2022.** Note: realignment of the MUs between Southland and Otago, (around the northern Flagstaff 1 boundary) is recommended.

For the purposes of this Strategy, the project area is divided into three overall management areas (refer Figure 2b), with current responsibility for control noted below:

- **Mid Dome Core maintenance area** (26 %) – the Trust’s responsibility.
- **Flagstaff maintenance area** (14 %) - the Trust’s responsibility.
- **East of Matura River maintenance area** (60 %) – occupier responsibility, with ES actions to support (e.g. engagement, advocacy, monitoring and compliance if required).

Table 2 names each management area, the operational areas within these and their size.

**Table 2: Mid Dome management area / operational area statistics**

Management area	Operational area	Hectares
<b>Mid Dome Core</b> <i>18,000 ha. covering 15 operational areas</i>	Cattleflat 1	2,387
	Cattleflat 2	2,775
	Cattleflat 3	426
	Dept Conservation 1	875
	Dept Conservation 2	922
	Dept Conservation 3	468
	Dept Conservation 4	705
	Dept Conservation 5	531
	Dept Conservation 6	1,554
	Five Rivers 1	479
	Five Rivers 2	692
	Five Rivers 3	2,995
	Land Info NZ 1	461
	Land Info NZ 2	552
	Nokomai 1	2,181
<b>Flagstaff</b> <i>9,853 ha. covering 2 operational areas</i>	Flagstaff 1*	4,690
	Flagstaff 2	5,163
<b>East of Matura River</b> <i>41,990 ha. covering 5 operational areas</i>	Glenaray 1	21,143
	Glenlapa 1	4,987
	Moonlight 1	1,225
	Nokomai 2	13,309
	Dept Conservation 7	1,325

*\*Note: Mid Dome and Flagstaff MU boundaries. The Southland regional boundary, MPI management units and the Trust's operational boundaries are out of alignment. The Mid Dome MU is larger than the current Mid Dome project area. The Flagstaff MU does not extend to the Southland boundary and therefore the Remarkables MU is within the Southland regional boundary but under Otago fund management. Future wilding control work on the MU boundaries needs to be consistent and aligned to ensure there are no gaps – refer to recommendations.*

## **1.4 The Trust, project partners and other stakeholders**

### The Trust

The Trust takes a collaborative approach to managing wilding conifer spread and is represented by local landowners, iwi and community members, Land Information New Zealand, Department of Conservation and Environment Southland. The prime goal is to promote and protect the natural values of New Zealand's high country lands, particularly at Mid Dome.

Trust objectives include:

- Preventing spread of wilding trees in high country tussock lands (*Note: the current focus is on any wilding conifer species impacting Mid Dome*).
- Coordinating the efforts of agencies and stakeholders in achieving the goal.
- Providing resources to promote and achieve the goal.
- Promoting research into management practices to help achieve the goal.
- Educating the public on the sustainability of natural and physical resources.

The Trust is responsible for the programme's governance, funding requirements and has always taken a strategic long-term view to managing the wilding risk. The key activity is developing and implementing eradication strategies to control wilding conifers in the Mid Dome project area.

The first Strategy (2007) focused on establishment and controlling primary seed sources. The second Strategy included the above and also secondary seed sources, plus maintenance control elsewhere, and promoted self-management and hand back of control responsibilities to several occupiers (but before any formal process was instigated).

Although a lot of work remains for the Trust over the next decade, this third version of the Strategy focuses on the end point of the project. That is, once all control is completed to a satisfactory standard<sup>1</sup> across operational areas, responsibility for maintenance will be incrementally handed back to respective land occupiers for ongoing control, under the RPMP provisions.

With the change in emphasis, through this version of the Strategy, it is timely for the Trust to review the Deed of Charitable Trust to ensure that it is suitable for the period ahead – refer to recommendations.

### Partners and stakeholders

Eight agencies, entities or groups (with wide interests, strengths and knowledge) are key for the successful implementation of this Strategy. Table 3 summarises the parties, their roles and what issues and solutions they bring to the project.

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<sup>1</sup> A 'satisfactory standard' other than 'no coning trees detected' has yet to be fully defined and needs to be collectively considered by MPI and others.

**Table 3: Agencies and organisations with interests or connections to the Mid Dome project.**

<b>Strategy partners / stakeholders</b>	<b>Roles and value to project</b>
<p><b>Te Rūnanga o Ngāi Tahu</b> – the iwi authority</p>	<p>Te Ao Mārama Inc. is the Iwi liaison entity run by and representing Southland’s four rūnanga on numerous issues. Their role is mainly to provide Ngāi Tahu ki Murihiku input into the processes required by the RMA, LGA and other relevant legislation (mainly RMA issues).</p> <p>There is also Kaitiaki Rōpū o Murihiku (KR) which has representatives from each of the four Papatipu Rūnanga on it. KR represents the four rūnanga in conservation matters. KR meets with DOC on a six weekly basis as part of a Treaty of Waitangi partnership relationship.</p>
<p><b>Environment Southland (ES)</b> – Te Taiao Tonga</p>	<p>ES holds the secretarial and treasurer roles of the Trust completing all administrative work for the Trust and is an Operational Technical Advisory Group co-ordinator (OTAG). ES is also an active funding partner with the Trust.</p> <p>ES takes the regional lead on biosecurity matters and implements the RPMP, which includes wilding conifer management, monitoring and enforcement. ES is also the fund manager (for MPI) for control work in the region. ES is developing a regional wilding conifer strategy to align future work (e.g. relationships, transition plans, applying RPMP rules and reinvasion risks) across Southland.</p>
<p><b>Government departments:</b></p> <ul style="list-style-type: none"> <li>• <b>Ministry for Primary Industries (MPI)</b> - Manatū Ahu Matua</li> <li>• <b>Department of Conservation (DOC)</b> - Te Papa Atawhai</li> <li>• <b>Land Information New Zealand (LINZ)</b> - Toitu Te Whenua</li> </ul>	<p>Takes the national lead on biosecurity matters and funds and oversees the National Wilding Conifer Programme, via a national strategy (2015 – 2030). OTAG member.</p> <p>Manages Crown public conservation land (PCL) at Mid Dome and funds and implements pest control across PCL. OTAG member and active funding partner.</p> <p>Manages other Crown land, including the beds of lakes and rivers, forest land and South Island high country pastoral lease land, implements and funds pest control in these areas. OTAG member and active funding partner.</p>
<p><b>Whakatipu Wilding Conifer Control Group (WWCCG)</b> – and Otago Regional Council as the regional fundholder</p>	<p>WWCCG undertakes control neighbouring Mid Dome to the north, in the Remarkables MU. Work undertaken (or not) along the Flagstaff 1 northern boundary may influence outcomes for the Trust. These two MU boundaries require realignment.</p>
<p><b>Private land occupiers and lease holders</b> within Mid Dome project area</p>	<p>Own/occupy private land which receives much public funded control. Control is ‘handed back’ to occupiers once low levels (no coning trees) have been attained. Compliance is through RPMP rules via ES. Some occupiers are exacerbators of wilding spread, with planted forests and shelterbelts, from which seed spread occurs.</p>
<p><b>Contractors and programme managers</b> working at Mid Dome</p>	<p>Undertake ground and aerial control of wildings, working via operational plans developed by the Programme Manager. Maintaining contractor capability and capacity is vital under this Strategy.</p>

<b>Southland District Council (SDC)</b>	SDC is a resource consenting agency (covering the Mid Dome area and wider environs) in relation to plantation and permanent forestry and manages/controls activities through its District Plan. SDC will play a key role in the future through regulating landuse activities and links with the NES for Plantation Forestry.
<b>Corporate and farm forestry</b> enterprises (external to Mid Dome operational areas)	In places these operations appear to be causing unintended reinvasion of wilding seed spread, impacting Mid Dome operations and exacerbating wilding conifer spread risk elsewhere. It is important for this wider group to be included as a key project stakeholder and that engagement is stepped up.

## 1.5 Strategy structure

The Strategy includes the following sections:

- Section 1 has summarised the purpose and scope of the project, the Mid Dome area and land/tenure details, described the Trust’s roles and responsibilities and noted the key partners and stakeholders who are necessary for ongoing project success.
- Section 2 provides a situational analysis, noting what has been achieved to date, highlighting current issues and challenges ahead and what the desired future looks like.
- Section 3 contains the high level components of the Strategy – vision and aspirations of the Trust, iwi considerations, and goals and objectives for this third version of the Strategy, which flow into operational planning requirements and issues.
- Section 4 addresses the key challenges ahead for the Trust, noting a series of initiatives, influencing actions and leadership requirements which are key for the operational management components to work effectively.
- Section 5 notes other issues and responses for the Trust to consider, including awareness, engagement and perceptions, anticipated support from Environment Southland, future land tenure issues and general monitoring requirements.
- Section 6 pulls various strands of the Strategy together, by detailing the preferred operating and funding model to achieve the Strategy goals.
- Recommendations, a glossary of terms and references conclude the Strategy.

## 2 PRESENT AND FUTURE SITUATIONS

### 2.1 Current state – what has been achieved?

#### Overview

The Mid Dome area, due to its access, weather and logistical challenges is not an easy site to undertake intensive and ongoing wilding control work in. Successful control is not always straightforward to achieve and it is a credit to the Trust, the Programme Manager and skilled aerial and ground control contractors on what has been achieved over the last 17 years. In terms of ‘results on the ground’, the sequence of control shown in Figure 3 (a-d) vividly shows an example of the successes (latterly) being achieved in one of the toughest catchments, the Tomogalak. By 2015 this catchment was heavily infested, following years of seeding. Seven years later, while there are still wildings evident, much of the landscape has seen intensive control.



**Figure 3(a): Tomogalak Stream wilding tree spread sequence – November 1998**



**Figure 3(b): Tomogalak Stream – December 2004**



**Figure 3(c): Tomogalak Stream – May 2015**



**Figure 3(d): Tomogalak Stream – Nov. 2022**

To understand how the current state was reached and the quantum of work carried out, it is worth reflecting on the stages of control planned and the prior operating principles. These set the foundations for the outcomes achieved and provide the ‘launch pad’ for the project’s conclusion. Figure 4 graphically depicts a five phased approach (and as further summarised).

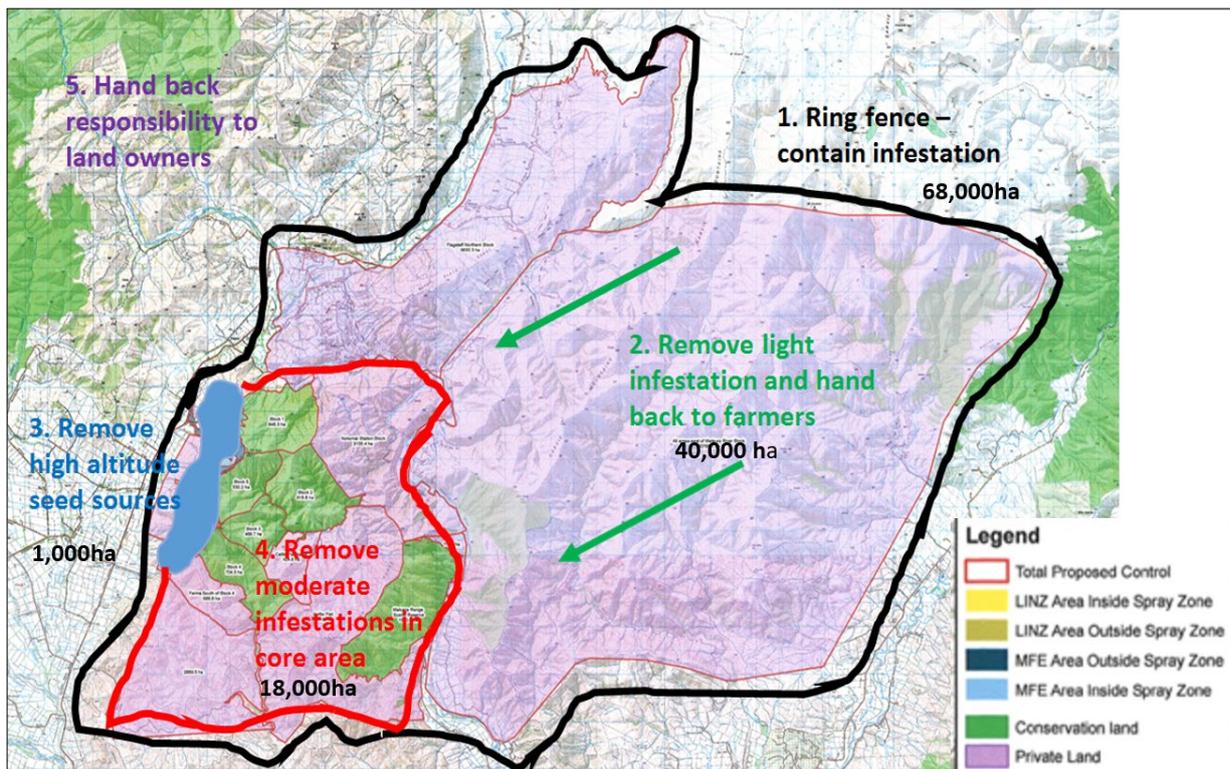


Figure 4: Five phases of management at Mid Dome. Source: Mid Dome Trust.

- ❖ Phase 1 - began in the mid-2000s by identifying outer boundaries of infestation, especially downwind to the east. This allowed the distant spread of wilding conifers from Mid Dome to be contained or ‘ring fenced’.
- ❖ Phase 2 – involved removing scattered trees on land east of the Matura River. This was achieved over two seasons by ground crews carried by helicopter to cut down every tree found. By 2009 around 40,000 ha of cleared land was handed to the respective occupiers to take responsibility for residual issues<sup>2</sup>.
- ❖ Phase 3 focused on destroying high-altitude seed sources on the western and upper slopes of Mid Dome/Cupola Ridge (approx. 1,000 ha. in the original planted area). This area provides the high risk take off points for windblown seed and is crucial to the project’s success. Work has involved intensive ground control and aerial spraying of closed canopy infestations. Most, if not all, of the primary seed source areas have been treated and ongoing maintenance is required to exhaust seed banks. DOC 3, 4, 5 and LINZ 1 are the key operational areas in the core (red area, Figure 4) to maintain effort.
- ❖ Phase 4 involves removing infestations in the rest of the 18,000 ha. core area west of the Matura River (especially Dome Creek and Tomogalak catchments). Much ground control has occurred on low density areas along with extensive aerial boom spraying or **Aerial Foliar Spray Application (AFSA)** of dense infestations. **Aerial Basal Bark Application (ABBA)** is used wherever possible to control scattered trees and light infestations over the bulk of the area. This was expected to take several years to

<sup>2</sup> In reality this ‘handover’ did not have unanimous uptake by occupiers and there was no ideal ES regime in place to support farmers.

complete as infested areas required an initial control then at least two further cycles of maintenance control 3 – 5 years apart<sup>3</sup>. The growing use of ABBA for dealing with light infestations in place of ground control/skid hopping is showing excellent benefits.

- ❖ Phase 5 will be complete when all land in the programme area is handed back to occupiers to manage. This will require land holders to be ready to take over and still requires considerable consultation and preparation (a key thread of this Strategy).

By 2018 the programme had almost completed phase 3 and was making good progress with Phase 4. By 2022, phase 3 was essentially complete and phase 4 was achieving excellent and accelerated control due to the three-year Covid-19 relief package (2021-2023), as summarised in updated points following. Table 4 summarises the quantum of work carried out (hectares treated) over the last five years, 2018-19 to 2021-22, including the 2022-23 programme (proposed only at time of writing). Key points are noted following.

**Table 4: Extrapolated and combined figures for areas treated at Mid Dome (last 5 years).** Data source: Boffa Miskell Ltd.

Area	2018/19	2019/20	2020/21	2021/22	Proposed 2022/23	Total hectares
Cattleflat 1	958	1185	505	755	1155	4,558
Cattleflat 2	1277	331	1662	1087	148	4,505
Cattleflat 3		136	8	72	194	410
DOC 1	116	600	652	474		1,842
DOC 2	59	19	922		3	1,003
DOC 3		144	28	21	21	214
DOC 4	40		120	48	63	271
DOC 5	20		398	68	120	606
DOC 6	477	1055	52	1554		3,138
Five Rivers 1			40		27	67
Five Rivers 2	121		149	208	17	495
Five Rivers 3	2831	39	74	2981	11	5,936
Flagstaff 1	25	3228	36			3,289
Flagstaff 2	339		1032			1,371
LINZ 1			198	48	40	286
LINZ 2			164		32	196
Nokomai 1	2066	19		1922		4,007
Nokomai 2			902		1	903
Moonlight 1			272			272
Glenaray					23	23
<b>Total hectares</b>	<b>8,329</b>	<b>6,756</b>	<b>7,214</b>	<b>9,238</b>	<b>1,855</b>	<b>33,392</b>

*\*Note: the hectares noted as being treated in the table above does not always equate to full treatment of all the area, much of the area covered is through spot treatment using the ABBA method.*

<sup>3</sup> To remove new trees that germinate before the seed bank in the soil is exhausted. It assumes there will be no new seed blown into the control area.

### Mid Dome Core maintenance area

By far the bulk of control work has centred on the 8-9 difficult operational areas in the Mid Dome core. Most if not all primary seed sources have been controlled. DOC blocks 3, 4 and 5 and the LINZ blocks 1 and 2 are at the centre of the core area and will require ongoing maintenance control treatment for several years, along with adjacent Five Rivers and Cattleflat areas. While challenging and expensive, the Trust has the necessary tools and methods available.

### Flagstaff maintenance area

Flagstaff operational areas are considered as part of the area to 'ring fence and push back to core Mid Dome'. Nevertheless, significant control work has been carried out, to a point recently where hand back was being considered for the lower, higher productive farmland. This situation has been reviewed as at the time of writing it was clearly evident that 'seed rain' (mostly Douglas fir) was impacting on control efforts and would require more work prior to hand back to landowners. Ongoing, cyclic ABBA work will be required, ideally once every 2-3 years (e.g for contorta, but longer return periods for Corsican pine as it seeds later).

### East of Mataura River maintenance area

A large part of this was controlled in 2009 by the Trust and further work in recent years, but essentially these 'handback' areas will be transitioning fully to landowner control obligations, under new Southland RPMP provisions. Occupiers of this land have been approached to take over responsibility but this has not been fully implemented.

## **2.2 SWOT analysis**

A situational analysis of the Mid Dome project was carried out, in two steps, as part of the review. Firstly, Mid Dome Trustees were interviewed (by way of pre-circulated questionnaire and a face to face meeting) to gauge their thoughts on the project to date and to seek feedback on a range of issues relevant for the next iteration of the Strategy (e.g. completion of the project to a point where all control is handed back to respective occupiers). Secondly, BBSL carried out several investigations and canvassed wider feedback through Boffa Miskell Ltd (BML) who was the Mid Dome Programme Manager at time of writing, and funding and governance bodies.

Regarding Trustee feedback, a variety of candid opinions were received, covering the overall programme, issues and constraints and future project thinking. Appendix 1 summarises the key thoughts to emerge.

Combined with the above feedback, and following observations and interviews with others, a SWOT analysis was carried out to assist with understanding the current state of the Mid Dome project. The following key points (these are not exhaustive) summarise where the project was 'at' by December 2022.

### Strengths

- ✓ The Trust has been a significant political force, advocating for control and funding and a key influencer on the management of wilding conifers elsewhere in the country.

- ✓ Development and implementation of improved aerial control methods has supported progress towards the completion goal (methods honed and herbicides proven).
- ✓ Dedicated, passionate and committed Trustees have been involved since the Trust's inception. Continuity of membership over 15 years has been well managed, along with a high level yet very focused eradication to control approach which has flowed on to the excellent cooperation between the project partners.
- ✓ Experienced and highly competent Programme Managers have been involved since 2007, managing all subcontracting, reporting, mapping and developing new innovations. Continuity of control and knowledge sharing has been key.
- ✓ An experienced contractor base with skilled operators has been pivotal, operating in all weathers and mostly in difficult to access and remote places. Again, continuity of contractors and building their knowledge of operational areas has been fundamental.
- ✓ Substantial operational improvements and innovations have been developed, such as using elevated loading sites (for water and herbicide mixing). The addition of accommodation (Turk) within the core ground control area has saved on travel costs and time.
- ✓ Real momentum was achieved in the three financial years spanning 2020-2023, as the project was finally adequately funded, due to 'front loading' of budgets approved through the National Programme administered by MPI (e.g. the Covid-19 initiated Jobs For Nature package to stimulate employment).

### Weaknesses

- × While a lot of useful data has been amassed around contractor and operational outputs, there has been a lack of empirical data on monitoring environmental outcomes<sup>4</sup>, such as responses to native vegetation, freshwater and erosion impacts as a result of wilding conifer removal.
- × A satisfactory and robust transition policy, nationally and regionally, has not yet been developed. While some transition east of the Mataura was carried out it has not been implemented as effectively as possible. Landowners have essentially received a 'free service' so occupiers may be reluctant to take on their responsibilities as land is handed back. It is acknowledged that control work commenced at Mid Dome well before the advent of the National Programme.
- × New leadership buy-in with ES senior management is required, along with increased resources to handle new RPMP requirements, such as land occupier liaison/transitioning, surveillance and compliance processes. Retaining and growing the relationship with ES both at political and staff level will be crucial.

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<sup>4</sup> Determining these outcomes is not within the project brief. This responsibility sits with ES and DOC. A GNS study (McSaveney and Davies, 2001) was carried out at Mid Dome and noted that soil loss would be expected as a result of wilding removal but only at a small scale. Large erosion events are caused by high rainfall events which impact on the locally geologically unstable bedrock.

- × At an operational level there have been inevitable gaps created and lost connections with key stakeholders (e.g. LINZ and DOC) through staff leaving and internal changes, with resulting losses of institutional and technical knowledge.
- × Further to the above point, agreement has not been discussed or reached with occupiers immediately adjoining the LINZ 2 area over Douglas fir harvesting/removal that should be carried out, as this will create reinfestation issues.

### Opportunities

- ✓ Developing new relationships with Environment Southland, DOC and LINZ at operational and political levels. This will be crucial for smooth landowner transitions to be made later. Collectively, these stronger connections will also be critical in keeping the wilding issue in front of the Crown as a legacy problem to keep addressing, along with newer plantation and permanent forestry expansions creating wilding spread.
- ✓ Regarding restoration efforts, now is a good time to encourage landowners to change farming practices, reseed areas or stock areas after felling to limit regrowth through grazing. Studies, by Scion (some time ago and not at Mid Dome), produced evidence that tussocks previously suppressed by wildings had succeeded in re-establishing. The Trust should be aware of this issue and may wish to consider further research, with others (potentially as part of a region-wide Strategy for Southland).
- ✓ Considering the merits of a national pest management plan for wilding conifers, with generic country-wide rules, which are streamlined and strengthened.
- ✓ Increasing dialogue with iwi in terms of support for the programme and to advocate for adequate funding for control.
- ✓ Mid Dome is a 'success story' nationally on how to turn the tide on wildings. The next Strategy period is a chance to further showcase best practice management and control, such as dealing with reinvasion, leadership and occupier transitioning processes.
- ✓ Educate and advocate for any future plantings and shelterbelts to be the 'right tree in the right location'.
- ✓ It takes time and energy, but building on the above success will require capturing the hearts and minds of community members and wider Southland public. Increased use of social media and community engagement will help sell the project.
- ✓ Advances in technology are always anticipated and should be supported when proven. One such development useful to many wilding projects would be having accurate artificial intelligence (AI) to scan real time photos and imagery to pick out individual wilding trees.
- ✓ Southland District Plan forestry review. Advocate for sensible rules in regards to plantations to prevent future wilding threats.

## Threats

- × Inadequate and unsustainable funding (and not having shortfalls) to see the project through. Continuation of front loading budgets is desirable to get over the 'crest of control' needed. It will never be cheaper to do this than now. The wilding pine situation nationally could mirror the national bovine TB control programme when funding of that programme was pulled back.
- × Reinvasion spread risks from outside the MU – 26 plantations close by were identified in 2016 (Dunlevey report) as potential issues, especially Douglas fir plantations. Closer to Mid Dome itself there is a Douglas fir plantation below LINZ 2.
- × Impacts on general staffing and contracting personnel – retaining and recruiting skilled workers. Any drop in funding will likely result in some businesses and workers leaving the industry.
- × Although much is talked about invasive pines outside Mid Dome blowing seed into the area, there are Douglas fir plantations within the Mid Dome project area which need addressing.
- × The Wilding Tree Risk Calculator within the NES for Plantation Forestry (NES-PF) requires urgent fixing, including who is qualified to use it. Other issues with the NES-PF mean that the standards set can override existing RMA resource (District Plan) conditions around new conifer plantations.
- × Operational inconsistencies exist around broad locations of biodiversity areas and increased expectations around water buffers when water quality sampling. Further conversations are required to address these matters while acknowledging the need to leave the area in a better state.
- × It is comparatively unknown what high levels of herbicide application are doing to the fragile environment on Mid Dome and research and trials into less harmful herbicides should continue.

## **2.3 Key issues in the next decade**

From the SWOT analysis carried out and consultation undertaken with key people and stakeholders the following points summarise six critical factors that need to be addressed:

- The Mid Dome Project must obtain the funding it needs to take each phase of the operation through to completion.
- Regarding control tools, the development and implementation of improved control methods is expected to increase progress toward the completion goal. It is hoped that an aerial herbicide treatment can be developed for medium density infestations. If off-target effects can be minimised this could provide a very cost-effective tool for second and third cycle maintenance.

- Aerial boom spraying methods were expected to achieve high mortalities (90%+) from initial treatments. However, there is evidence at Mid Dome that some sprayed areas have not achieved this target and that some form of retreatment will be needed. This could add substantial new costs to the Project, but reflects the realities of dealing with complex control situations in difficult terrain and conditions.
- Land owners and managers must be made aware of their requirement to take over responsibility for long term management after the completion of the programme, and plan and prepare to meet their obligations well before the handover date. There has been little progress on this matter to date<sup>5</sup>. Moving from Trust control to landowner control is one key component of this Strategy.
- It is critical that the Trust maintains strong collaborative relationships with its stakeholders and the Government agencies and continues to advocate strongly for the support and resources it needs to complete the programme.
- Reinvasion from plantation forests external to, and upwind of, Mid Dome is a key reason for delays in hand back for Flagstaff areas, and is most likely affecting other areas.

## **2.4 Outcomes sought – desired future state**

The outcomes sought by the Trust can be condensed into six key focus areas. They are summarised below and expanded on in section 4, accordingly:

1. That prior gains made in the programme are maintained and that sufficient funding is obtained to complete the project.
2. That smooth transitioning from Trust management and control to ongoing occupier control occurs, following sufficient lead in time and engagement, led by Environment Southland.
3. That Environment Southland implements a robust monitoring and compliance programme to maintain the integrity of the programme, and uses the enforcement provisions when necessary, as set out in the Southland RPMP and the Biosecurity Act 1993.
4. That reinvasion spread risk occurring now, from outside the Mid Dome area, is mitigated or reduced in the future through dialogue with, and action by, shelterbelt and plantation forest owners.
5. That operational anomalies (e.g. increased buffers and setbacks involving spraying into or over waterbodies and a lack of defined/mapped biodiversity focus areas) are discussed and agreements reached, to improve overall efficiencies, while protecting the environment at the same time.
6. That the operational capability and capacity of the contracting base is maintained, and enhanced locally, to ensure completion of the project.

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<sup>5</sup> This is a national issue, not just specific to Mid Dome.

## 3 MID DOME STRATEGY FRAMEWORK

### 3.1 Vision of the Trust

The original vision of the Trust still endures:

*Mid Dome's mountainous scenery, conservation reserves and high value pastoral lands shall be restored to preserve and protect Southland's economy and natural beauty.*

Regarding an operational vision, the Trust notes:

*"We have reached the point where we have broken the back of the problem and now need to maintain areas until seed banks are exhausted .... if the programme is optimally funded".*

### 3.2 Goals and objectives

#### Goals

1. Wilding conifer infestations are at zero density (the standard being 'no coning trees' apparent) across the Mid Dome and Flagstaff Management Units by July 2033.
2. Operational areas are progressively transitioned as the standard is achieved, and following due process, to full occupier responsibility in preceding years (prior to or by July 2033).
3. Landowners and occupiers/managers, of lands transitioned, are committed to and actively involved in the ongoing protection of the Mid Dome area from any wilding conifers, and are ably supported by Environment Southland.
4. The risks of wilding seedlings establishing from sources outside Mid Dome is reduced as far as is practicable.

#### Objectives / KPI's

Previous strategies have presented objectives in relation to percentage reductions in primary and secondary seed sources. This Strategy focuses on the timings of landowner hand backs anticipated, along with the relationships, engagement and support needed.

1. A practical and all-encompassing landowner agreement<sup>6</sup> process and document is advocated (Environment Southland to take the lead in development, in conjunction with the MDT), that meets wider Southland RPMP policy requirements, by 1 December 2023.

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<sup>6</sup> Referred to in section 4.2 as a Biosecurity Management Plan (BMP). This BMP could be a separate written agreement between parties or incorporated into an Integrated Farm Plan that many occupiers have.

2. Renewed maintenance agreements (between ES and land occupiers) are made with all occupiers east of the Mataura River, by 1 June 2024, as far as the RPMP can support this.
3. Hand back of ongoing wilding conifer control responsibilities to occupiers in the Flagstaff operational areas is completed by 31 March 2028, following a one year transition period prior (to assess any ongoing outside seed reinvasion<sup>7</sup>).
4. Hand back of ongoing wilding conifer control responsibilities to occupiers in the Cattle Flat 1, Five Rivers 3, Nokomai 1 and DOC 1 operational areas occurs during 2028/29 (completed by 1 March 2029).
5. Hand back of ongoing wilding conifer control responsibilities to the Department of Conservation in the DOC 2 and 6 operational areas is completed by 1 July 2030, following a transition year prior (as per footnote 7).
6. Hand back of ongoing wilding conifer control responsibilities to occupiers in the Cattle Flat 2 and 3, Five Rivers 1 and 2 and LINZ 2 operational areas is completed by 30 June 2031 (some areas may be subject to surveillance/tidy up work for another year).
7. Hand back prior intractable land, in DOC 3, 4 and 5 and LINZ 1 operational areas, for ongoing wilding conifer control responsibilities by Crown departments (DOC and LINZ) is completed by July 2033.
8. Following hand overs, occupiers sustain zero density of wilding conifers (no coning trees) on their properties.
9. The Trust actively engages in ongoing dialogue with Environment Southland, Crown agencies, iwi and other key stakeholders, annually or as required.

### 3.3 Iwi aspirations

Iwi expectations around involvement in the Mid Dome project have been briefly canvassed. The following is a statement made that will be used to guide future dialogue.

*“Ngāi Tahu ki Murihiku’s focus is very much on kaitiakitanga, and the protection and restoration of the whenua, wai and taonga species. Wilding pines seriously affect taonga species, such as karearea, by displacing tussock lands like those found at Mid Dome. Tussock ecosystems provide ideal habitat for moths which karearea feed on. These effects on karearea are just one example of the dramatic impacts that introduced pest plants and pest animals are having on Aotearoa’s species. In a relatively short time 40 per cent of indigenous land and sea birds have become extinct and many of the rest are threatened or vulnerable<sup>8</sup>.*

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<sup>7</sup> This means that an area is scheduled to be handed back to occupiers by ES, but should it? Decision would be based around occupier attitude and reinvasion risk if this is still apparent. The transition period could see minor ABBA work carried out, for example. See also the key in Table 5.

<sup>8</sup> Pers. comm. Michael Skerrett, Mid Dome Trustee, February 2023.

*Te Ao Mārama Incorporated provides Ngāi Tahu ki Murihiku with advice and input into local government and environmental processes as required by law. Specifically, Kaitiaki Rōpū o Murihiku (KR), represents the four Papatipu Rūnanga in conservation matters and has a direct Treaty relationship with the Department of Conservation. Dialogue around Mid Dome wilding issues sits with KR”.*

Ngāi Tahu’s Treaty of Waitangi settlement provides for direct input into DOC’s Business Planning processes. One scenario (yet to be confirmed or explored) is for KR to submit to DOC’s planning development that KR supports Mid Dome Trust’s application for adequate funding (e.g. as advocated through this Strategy).

At the time of writing, KR was negotiating a Contract for Service with DOC to employ a person in a strategic position to further strengthen the relationship. Although the position will be working under the auspices of KR the person employed will be hosted by Te Ao Mārama Inc., as both bodies are environmental entities.

### **3.4 Operational and planning considerations**

This section details key components of the Strategy’s implementation, covering project management, operational management and delivery and methodologies used.

#### Project management

- Delivery of the wilding conifer control programme in a timely, cost-effective and safe manner will continue to be fundamental to the achievement of the Strategy goals.
- The Trust will continue to partner with a third-party service provider, which has the necessary technical knowledge, logistical capacity and resources to deliver an agreed annual programme on its behalf. The provider, known as “the Management Agency”<sup>9</sup>, will be required to deliver the services under a Contract for Service and written performance specifications.
- The Trust will engage the Management Agency for a specific period which may include a right of renewal, subject to satisfactory performance. Arrangements ultimately need to cover the 10 year Strategy period or other agreed timeframe, noting that the Trust operates at the whim of funding fluctuations in the National Programme.
- The Management Agency will appoint an individual as Project Manager who will report to the Trust, on matters as agreed and have GIS and analytical capability.
- The Management Agency will report to the Trust on the progress towards achieving targets set out in the Operational Plan, annually and against Strategy objectives.
- Reporting will include: inputs applied to each operational area; any changes in densities (where relevant); commentary on meeting timelines for operational area handovers, specific operational area, and overall project, monitoring activities carried out.

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<sup>9</sup> The term Programme Manager is used throughout this document to better describe the implementation of the control works. ‘Management Agency’ and ‘Programme Manager’ mean the same third party provider of services.

- Regarding research opportunities at Mid Dome, in addition to ensuring that its own control programmes are well documented and monitored, the Trust will actively encourage research by third parties (e.g. topics such as revegetation and succession, biodiversity enhancement, site remediation, trialing new control methods, better post-operational sampling).

### Operational management

- Wilding conifer control at Mid Dome is guided by an annual Operational Plan, which is the responsibility of the Management Agency to prepare and maintain.
- The Operational Plan documents the planned timeframe for control for the given year, the methods of control to be used, the operational budget required, and any targets / KPIs to be met (by management area and/or operational area).
- Current operational areas are defined by land tenure. Their boundaries should be retained as much as possible (to enable historical comparisons) but there may be some redefinitions required if part areas are handed back to occupiers. Operational areas should continue to reflect the three management areas described in this Strategy (East of Matura River, Flagstaff and Mid Dome).
- With ongoing developments in control methods and variances in annual funding, the Management Agency will update annual Operational Plan with new information, as appropriate.
- The Operational Plan will ideally be completed and adopted by the Trust by 31<sup>st</sup> July annually, for work commencing in November of that same year. The first Operational Plan under this Strategy should cover the period from 1 July 2023 to 30 June 2024.
- The Operational Plan may be subject to independent review, as determined by the Trust.

### Operational delivery focus

- All of the work proposed through the Strategy is maintenance control. A significant investment has been made in the initial control of wilding conifers through all the operational areas. This investment must be protected by continuing maintenance of these areas with the objective of eventual hand back to the relevant occupiers, adopting a standard of 'no coning trees detected' prior to hand over.
- The focus is on on-going surveillance for missed coning trees and small infestations, as these provide the impetus from which new populations of pines could establish over time. The 'rule of thumb' for the control of regrowth is at least once every three years, with a minimum of two maintenance cycles assuming there is no recruitment from outside the site. In some cases, where on-going recruitment is occurring, (e.g. Flagstaff) three or more maintenance phases will be required.

- As handovers to occupiers stages and timeframes occur, some 'tidy-up' of sites may be necessary, for reasons outlined in footnote 7 above. Any additional work deemed necessary by the Trust before full handover to occupiers occurs will be considered on a case by case basis.

### Control methodologies

- Wilding conifer control is in a perpetual state of development in New Zealand, as new methods are developed and existing methods refined. Accordingly, a strong adaptive management approach will be adopted within the programme.
- The Project Manager will commit to annual wilding conifer symposia and demonstrate commitment to trialling new methods. Control effort and cost will be documented, and efficacy monitored, to provide the basis for making sound operational decisions on the appropriateness of different control methods for different situations.
- Aerial foliar spray application (AFSA), also referred to as boom spraying, is to be implemented following MPI best-practice guidelines and also adhering to EPA and ES conditions (if there are any additional requirements).
- Aerial basal bark application (ABBA) has been an effective method for covering large areas and is used to control widely scattered trees, and for qualitative assessment purposes.
- Ground control is a crucial component of the maintenance programme. In the extensive alpine tussock areas, a range of methods are available including using hand-tools, felling, basal bark application, spot spraying and herbicide injection.
- The selection of the above methods should be based on sound operational data – control effort, cost and environmental efficacy – gathered by the Project Manager for each operation undertaken.



## 4 KEY CHALLENGES TO BE ADDRESSED

To achieve programme completion and this Strategy's targets by 2033 several critical issues must be addressed.

### 4.1 Maintaining the gains of prior and current control

The Mid Dome Project must obtain the funding it needs to take the operation through to completion. This Strategy estimates this will likely cost \$20.5M (not inflation adjusted), on top of the almost \$17M spent to date. The Trust must continue to raise whatever funds it can from already heavily subscribed public and private sources. However, most importantly it must seek the bulk of its funding from Government through the National Wilding Conifer Control Programme. *"If this money cannot be provided, then the programme will fail and the sunk costs to date will be lost<sup>10</sup>".* A 10-year funding model has been developed, as detailed in section 5.

### 4.2 Transitioning to landowner ongoing management

#### Overview

Transitioning from Trust led control work to owner/occupier ongoing management is a fundamental goal of this Strategy. The hand back concept is also a core principle adopted nationally under the NZ Wilding Conifer Management Strategy, following many years of intensive control funded by numerous parties.

Mid Dome is in a unique position compared with all other Management Units in New Zealand, where five operational areas were essentially handed back to East of Matura occupiers in 2009 by the Trust. Although well-intended at the time the transition process was only partially completed and not formally included in the 2019 RPMP or in written agreements between parties, prior RPMP rules were insufficient and restrictive (i.e. they only covered *P. contorta* and *P. mugo* species) and while some monitoring was carried out by ES there was no effective compliance regime applied<sup>11</sup>. However, the philosophy and intent of the 2009 letters sent (Appendix 2) remain unchanged<sup>12</sup>. The 2009 proposals need revisiting and the overall process needs tightening and aligning with national and regional policy and resulting standard operating procedures (SOPs).

#### Transition principles agreed nationally

At the time of writing transition planning had commenced nationally, with MPI, partner councils and stakeholders developing guidance to transition the management of wilding conifer control areas back to regional/local management after agreed criteria have been met for that area. Agreeing on the approach helps the parties understand what the end of the Programme looks like, identify who will be responsible for ongoing wilding conifer control and to ensure that the benefits and significant investment to date are secured.

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<sup>10</sup> Pers. comm. R Bowman, Trustee, 2020.

<sup>11</sup> Anecdotal feedback from landowners was that some did not agree that their land was clear of all pines and were reluctant to accept ongoing responsibilities.

<sup>12</sup> The concept was a groundbreaker in New Zealand at the time, developed quite some time before the National Wilding Conifer Strategy project was even considered.

The aim is to develop transition guidance criteria which contain flexible arrangements for regions to choose from for their own circumstances, e.g. each MU would develop a specific transition plan. Principles generally agreed to date include:

1. The process to transition land needs to be efficient, feasible, transparent and reasonable, but also flexible (i.e. parts of an operational area could be transitioned).
2. Key criteria include the number of maintenance phases carried out, location and density of existing seed sources, surrounding land use, and having a monitoring plan in place.
3. There is a role for MPI to play regarding consistency and streamlining of current RPMP rules (refer to Page, T. 2021.), streamlining funding contributions and reconsideration of reinvasion risks from outside management areas. Modifications on the first spread risk calculator are expected.
4. Where areas are being contained but are unlikely to transition, the National Programme will have an ongoing role in preventing spread from these areas.
5. The Crown has a responsibility to act as a good steward of publicly owned land. How they do this is yet to be decided between the various Crown departments.
6. The Crown needs to acknowledge its ongoing commitment as a landowner and continue to fund its share of wilding conifer management.
7. Managing Crown land is only part of an enduring integrated management solution that needs to occur across lands of all tenure.

### Considerations for Mid Dome

A tightened process, once agreed, needs to be applied first for East of Matura occupiers and then to Flagstaff and Mid Dome Core transitioning areas as set out in the Strategy's timebound objectives. Nevertheless, the point at which handover occurs must be practicably thought through and based on negotiation and between the Trust and the landowner/land manager, variables such as the size and terrain of the property, the value of parts of the property for pastoral farming, the risk of wilding conifer recruitment from outside the property and the situation of the landowner/land manager must be recognised.

Although there is no wilding conifer density established per property the threshold for handover of 'no coning trees' is generally applicable<sup>13</sup>. There should also be some flexibility applied, such as provision for partial handover of a property, or a staged handover over an agreed period. Ultimately, the Trust and its funding partners need to be assured that landowners/land

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<sup>13</sup> Note: Within the Mid Dome area there is an exemption for occupiers under the RPMP (refer to rule 14 outlined in section 4.3 following), with ES required to clear seeding trees (*P. contorta* and *P. mugo*) from land. This exemption does not apply to any other wilding species.

managers are making 'best endeavours' to keep their properties free of wilding pine trees, in order to protect the considerable investment that the Trust has made.

Post Covid-19, landowner communications had commenced as ES desired to 'square up' original agreements<sup>14</sup>. At the time of writing this was a 'work in progress' with the following points being considered:

- A clear, written agreement made between ES and the landowner, via a specific Biosecurity Management Plan (BMP) developed, which is signed by the parties. This agreement could also be embedded within a wider Integrated Farm Environmental Plan.
- Background and objectives of the Biosecurity Management Plan.
- Proposals that meet the RPMP requirements.
- Standards to maintain (e.g. no coning trees on property, as determined on an annual basis).
- Addressing specific property issues, e.g. location of nearest seeding trees.
- Addressing other issues that may arise, e.g. spread from occupiers Douglas fir plantations on their properties.
- What the ES monitoring regime entails.
- Compliance and enforcement procedures outlined, consequent to occupiers failing to meet control standards.
- Map clearly defining the handed back area(s).

For this transitioning process to work effectively, it is crucial that ES builds capacity to work closely with transitioned landowners, to provide an appropriate level of ongoing advice and support and resource the requirements of the monitoring and compliance programme.

Due to the historical situation of hand backs in 2009, a different process<sup>15</sup> may be required for East of Matura properties compared with other management areas. Regardless, ES needs to show leadership in this area and prepare the way for smooth transitions to occur.

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<sup>14</sup> This work coincides with MPI development of a national transition process, therefore draft agreements may be developed in the interim.

<sup>15</sup> ES suggested, J. Hazley (pers. comm. December 2022), that this work be a case study to inform the national development of transitioning policy.

### 4.3 Environment Southland – implementing RPMP provisions

#### Overview

While the Trust is not involved in implementing the Southland RPMP (2019-2029) it will maintain close interest in progress being made over the next decade. There is a direct link between the handover regime described in section 4.2 and the follow up monitoring and compliance activities managed by ES. The desire is to have a smooth process operating between the activities of the two entities. This section lists the wilding conifer rules in the RPMP, highlights their limitations and summarises key steps that need to happen, all of which will impact on this Strategy’s success.

#### Southland RPMP

The full RPMP policy and rules for wilding conifers are contained in Appendix 3. The RPMP states that wilding conifers are any introduced conifer tree established through natural means and found outside of a plantation forest. For RPMP purposes a ‘forest plantation’ (i.e. not subject to RPMP rules) is an area of predominantly planted trees 1 ha. or greater, but excludes planted windbreaks and shelterbelts less than 1 ha. Eleven pine/larch species are listed as progressive containment pests. Rules are summarised below, with relevance to Mid Dome noted.

<p><b>Rule 14</b> - Owners and occupiers shall eliminate all contorta and mountain pine plants from the land they occupy, prior to cone bearing, as determined by written notice from ES.</p>	<p>To maintain land that is clear or being cleared of these plants from being re-infested. Within the Mid Dome area occupiers are specifically exempt until the Programme Manager (i.e ES) has removed seeding trees from the land.</p>
<p><b>Rule 15</b> - Within the Southland Wilding Conifer Management Area (Appendix 3), owners and occupiers shall destroy all wilding conifers on land that they occupy prior to cone bearing, if the land has received control since 2019 and at least some public funding was involved.</p>	<p>The main rule available to ES, to hold owners and occupiers to account to manage ongoing infestations. Wilding conifers are to be prevented from re-establishing at sites where wildings have previously been destroyed through publicly funded control operations.</p>
<p><b>Rule 16</b> - Occupiers shall destroy wilding conifers present on land that they occupy within 200m of an adjoining property, prior to cone bearing, if they [adjoining wilding conifers] were cleared through operations since June 2019 and the occupier of that adjoining land is taking reasonable steps to manage wilding conifers within 200m of the boundary.</p>	<p>A good neighbour rule which may be of limited use at Mid Dome (e.g. to compel Crown land occupier action) to provide against externality impacts. ES action would be initiated upon a written complaint from the adjoining affected owner and/or occupier.</p>
<p><b>Rule 17</b> – A pest agent rule, where occupiers shall destroy any Pest Agent Conifer present on land that they occupy within 200m of an adjoining property, where adjoining wilding conifers were cleared within 200m of the boundary through operations undertaken since June 2019 and at least some public funding was involved.</p>	<p>Of limited usefulness for Mid Dome. Rule involves at least two properties and requires a formal written notice from ES and previous control on the adjoining property. Designed to address seed spread and subsequent wilding conifer establishment from any introduced conifer species (including planted or naturally established trees, but outside of a plantation forest) that may be contributing to wilding spread. For example, the rule could require</p>

	a landowner to remove Douglas fir trees planted for amenity value or shelter where there is evidence they are contributing to the establishment of wilding seedlings and spread.
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### Considerations

The above rules are an improvement on prior policies and rules 14 and 15 will be the most appropriate for applying to Mid Dome landowners. Limitations of rules include:

- They have not been tested.
- They may be too restrictive (200 m boundary setback).
- The pest agent rule cannot be used to require management of spread from plantation forests. There are no rules that place responsibilities on plantation forest owners.

ES establishing a robust monitoring programme, that sees property inspections carried out (and relationships maintained through Biosecurity Management Plans developed) on a regular basis, is the key to the project's ongoing success once handovers have been completed.

The Trust notes that any enforcement action should be a last resort, but rules should be used where necessary. It is recommended that ES should be further involved in using and developing greater practical application for the rules. Ultimately, pursuing a regulatory approach for wilding conifer management will only succeed where ES has laid a good foundation through monitoring, education and negotiation with transitioned Mid Dome occupiers.

## 4.4 Impacts of wilding reinvasion from outside Mid Dome

### Overview

The impacts of wilding conifer invasion from seed sources upwind of the Mid Dome operational area are already being felt. They have the potential to be devastating for the project and will directly affect this Strategy's outcomes. Dunlevey (2016) noted over 100 potential sources<sup>16</sup> of pine plantations and shelterbelts that may contribute seed spread to Mid Dome. Previous strategies identified external reinvasion as an issue, however little action has been undertaken to address this risk. Thought needs to be given as to how this risk may be mitigated or avoided.

In a statutory sense the 'playing field' is confusing as a number of Acts, rules, regulations and policies collide. There is district council involvement from an RMA perspective and District Plan provisions requiring consents for plantations and carbon forests. Regional councils are responsible for administering the rules under the NES-Plantation Forestry<sup>17</sup> particularly in relation to earthworks, sediment control and biodiversity. MPI has overview of carbon forestry via the ETS, NES-PF and wilding conifer eradication programmes. The roles and responsibilities of these agencies all contribute to conflicting national objectives that have not been resolved.

Environment Southland administers the RPMP, in relation to wilding conifers deemed to be a pest. RPMP rules will become a significant part of the control transition to respective landowners to maintain wilding-free statuses. Similarly, ES and Trust engagement with owners of surrounding forest plantations will become crucial, to mitigate seed spread and reinfestation of Mid Dome.

### Observations

During a review field trip of the Mid Dome and Flagstaff operational areas a salient feature was emergent Douglas fir and other pine seedlings establishing in tussock country adjacent to the Nevis Road. This indicates a disturbing trend for Mid Dome as it signifies an endless battle to remove seed spread seedlings. It is logical to assume (but unproven) that the seeds are originating from plantation(s) nearby. The owners currently have no obligation to address the externality effects of their plantations.

After significant control efforts it is unreasonable to put the whole of Mid Dome and surrounding lands at (ongoing) risk from a secondary wind-blown seed spread infestation. The only solution is to develop more effective policy and operationalise it to remove the wind spread seed risk. One comment made during the review is pertinent, *"... the prior generation of landowners provided great support for the programme as they had experienced the spread and impacts of wildings. However, the next generation lacks real empathy for the programme, do not have any 'skin in the game' and consequently are blasé regarding wildings"*.

As the programme achieves freedom from wildings area by area the procedure is to 'hand the land back' to the landowner to take responsibility for follow up removal of any wildings that appear. There is a formal process for this transfer of responsibility managed by ES (refer to prior

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<sup>16</sup> Of these stands 26 were identified as high risk and 32 as moderate risk for Mid Dome. The study concluded that impacts may be felt most in four Mid Dome operational areas (Five Rivers 1 and 3, Nokomai 1 and Flagstaff 2).

<sup>17</sup> To be amended to include carbon forest plantings.

section), whereby clear expectations are set down, and landowners must acknowledge that they are bound by the rules within the RPMP.

Regarding the wilding control hand back process, it was concerning to observe young plantings of Douglas fir in the southern part of the MU and established plantings adjacent to Nokomai River, despite all the signals that this species has a strong propensity for wilding spread. From Dunlevey's study there are numerous woodlots particularly to the northwest of Mid Dome that pose substantial risks of seed spread onto Mid Dome<sup>18</sup>.

### Considerations

Given the substantial number of shelterbelts and woodlots that pose a risk to Mid Dome from seed rain ES, SDC and the Trust need to commence dialogue with owners to work through a progressive risk assessment and mitigation plan. Involvement of the NZ Farm Forestry Southland branch would be advantageous to assist connection with landowners. Components that need to be addressed include educating woodlot owners that their stands pose a real risk to Mid Dome and they need to assist in preventing seed dispersal. This can be mitigated to some extent by:

- Plantation owners establishing their own surveillance around stand perimeters to remove any wildings establishing.
- Harvesting mature woodlots/shelterbelts and replanting in alternative non spreading species.
- Modelling seed dispersal from some high threat Douglas fir plantations as a preliminary step to negotiating cost sharing arrangements to recognise the externality effects of seed spread.

This Strategy suggests that more advocacy is needed, led by MPI with assistance from ES, SDC and the Trust to raise the issues about seed spread from plantation forestry. Through multi-media approaches, the parties could develop a targeted programme for relevant landowners, advising that any conifer planting of (RPMP) pest and pest agent risk species is highly problematic for adjacent land owners and managers and to seek professional advice on any proposed woodlot plantings. New and better measures need to be put in place through the SDC District Plan.

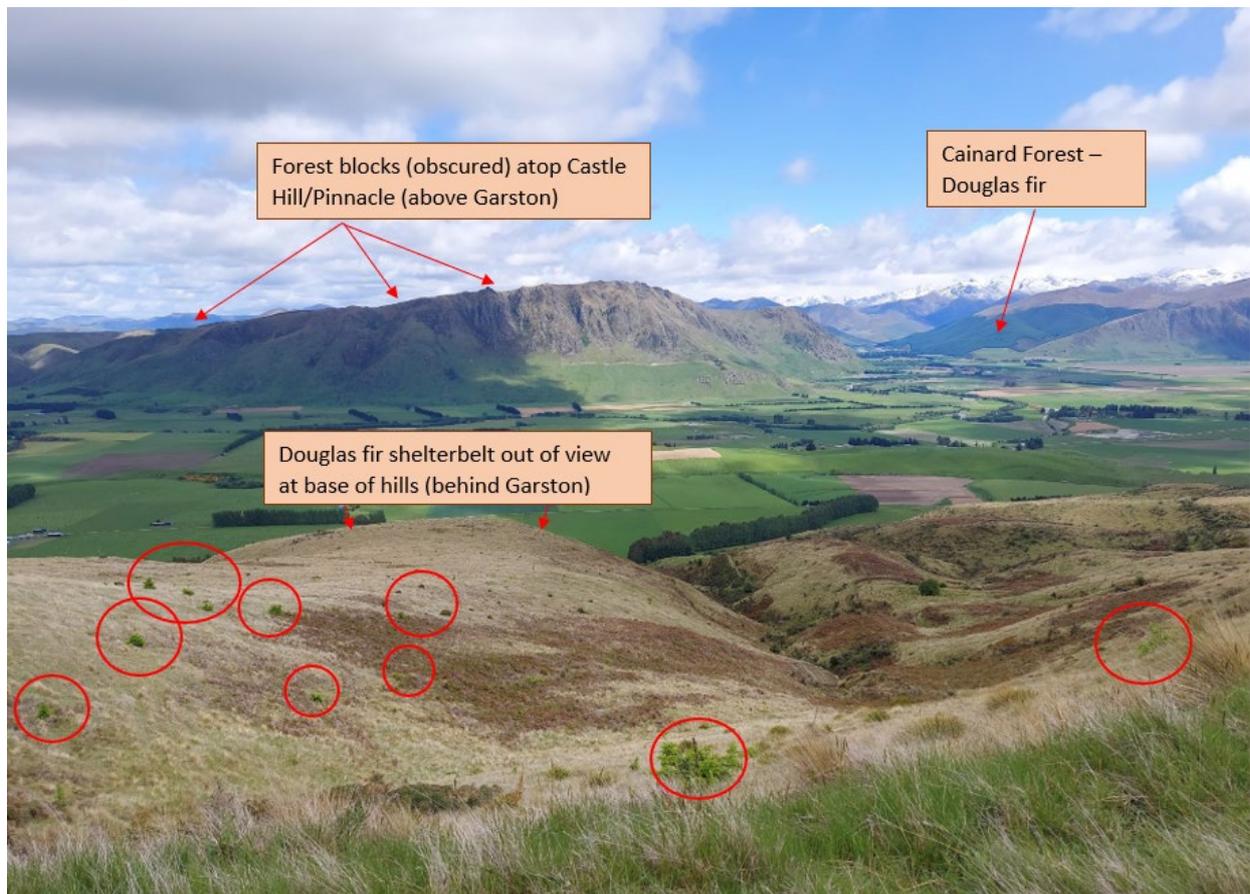
Engagement of landowners within the Mid Dome operational areas to manage the transition from a fully funded scheme to a landowner responsibility is a vital part of the next phase of the Strategy. It is noted that the buy-in of some landowners is less than ideal and whereby they are happy to have the funded work undertaken, indications are that they may not be prepared to take on the obligation and responsibility of assuming control. If this situation occurs then ES will need to adopt a harder-line enforcement regime that may result in fragmented outcomes. The influence of external spread risk factors will not help this transitioning process.

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<sup>18</sup> In the case of the southern Douglas fir plantings, it is apparent that the wilding risk calculator assessment was seriously deficient or was applied incorrectly. It questions upon whose authority such plantings can be established – it appears to be in breach of the Southland District Council District Plan rules, may be contrary to the RPMP pest agent rules, and probably breaches the NES-PF conditions on wilding conifer assessment.

If woodlot owners can be encouraged to adopt a perimeter surveillance programme the removal of wilding seedlings will have a positive long-term effect on reducing seed sources. Many landowners will claim that grazing removes any seedlings but trees will establish in sites where grazing pressure is minimal or absent. The removal of seedling trees from shelterbelts is likely more problematic. Farmers will be reluctant to harvest shelterbelts unless appropriate incentives are offered, however if a staged and long-term proposition can be developed with suitable alternative species such as *Cupressus* species, cedars, and native understory species, landowners may be willing to enter into agreements with ES.

Figure 5 illustrates the key issues that need addressing - multiple plantings of woodlots all capable of seed spread into the tussock country of the Flagstaff MU. This poses the challenge of how to attribute costs of removal from the exacerbators? It is virtually impossible to determine the seed source and technology for genetic tracing has not yet been developed.



**Figure 5: Wilding conifer reinfestation (red circles) on the Nevis Road, in the Flagstaff operational area. Possible sources (but impossible to track the exact origins) the forestry block (centre right), three forests in a high wind ‘take-off’ zone (centre left) or a large shelterbelt at the base of the hills (out of sight). Photo source: J Hazley, November 2022.**

In Figure 6 Douglas fir has been planted in an area immediately south of the Mid Dome operational area, posing a real threat of seed spread in the future. While, from the landowner’s perspective, a plantation forest is an ideal land use for an area covered with gorse and reverting manuka, it should not be at the risk of seed spread into surrounding country.



**Figure 6: Planted Douglas fir in the southern parts of the project area. Trees are approx. 3 years old and located southeast of Mid Dome. Out of shot (to the left) is an older radiata pine plantation, with a further Douglas fir block also planted. Photo source: P Russell, November 2022.**

### Next steps

In terms of reinvasion risks to Mid Dome, the Trust should investigate partnering with ES to engage with all forest owners within high risk areas and develop, through a forestry working group, policy for surveillance programme, removal of risk trees and seedling wildings, replacement of seeding shelter trees and equitable funding contributions from forestry interests to maintain Mid Dome free of seed rain wildings.

Also required is lobbying to review the wilding tree risk calculator (contained in the NES for PF) and partner with ES to ensure SDC monitors resource consent conditions set out, submit on the SDC District Plan review (provisionally 2023-2024) with a view to requiring more stringent rules and controls on any new conifer plantations – refer to full recommendations.

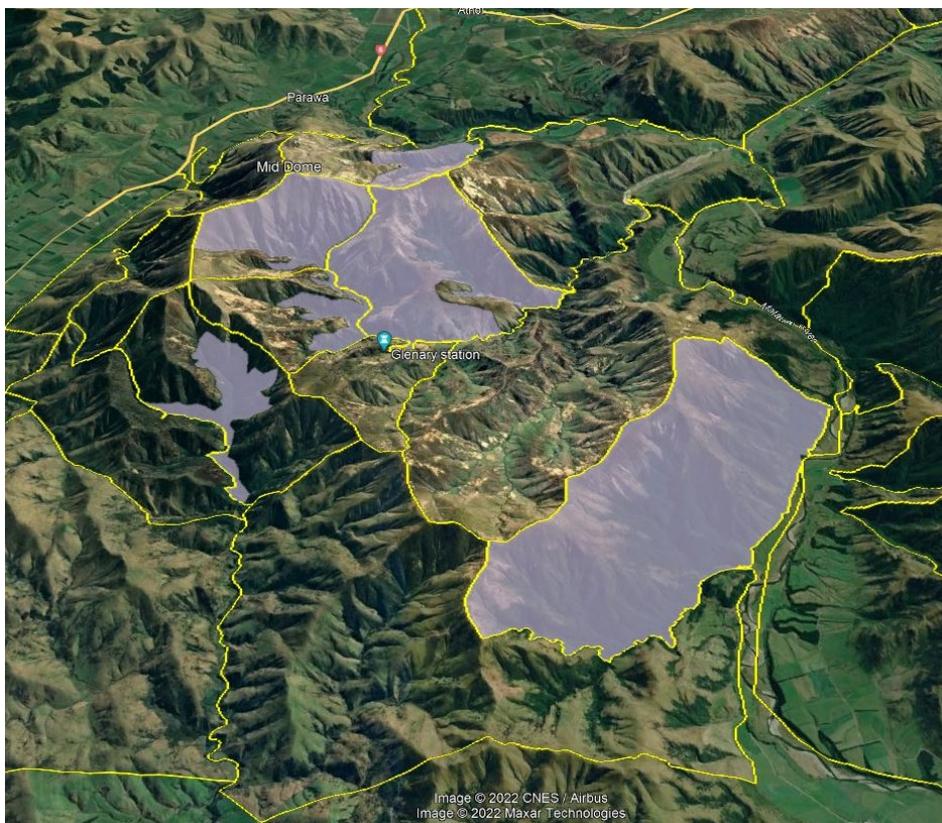
## 4.5 Balancing operational and environmental needs

The Trust's aim is to get on with the goal of wildings control and get to a point of no-coning trees prior to handover of control to landowners. There are good tools to achieve this but there is always a challenge to balance competing needs of efficient control and environmental factors.

### Biodiversity focus areas

The Mid Dome core area contains a number of biodiversity focus areas (Figure 7) that were loosely mapped in the past by DOC and presented to the Programme Manager to factor into aerial spray (AFSA) operations. The issue is about balancing the damage done to these ecological values by having wildings present (e.g. suppressing native beech and tussock vegetation) versus accepting some collateral damage to native vegetation may occur to achieve effective wilding control.

Collectively, these areas comprise a large area and it is often a 'juggling act' to use the most effective method with the least secondary impacts. In some instances it may be necessary to encroach on fringe native vegetation to treat wildings as the steep terrain or vegetation may preclude ground crews working or ABBA. The Trust, via the Programme Manager, will negotiate with DOC to enable workable compromises rather than having blanket bans on spraying in some of these areas. Matters to be addressed include: better mapping and defining the biodiversity focus areas and where the issues are specifically (e.g. is it an issue at all sites or just one or two?) and how can they be worked through for both ecological and operational practicalities?



**Figure 7: Mapped biodiversity layer, showing areas of ecological significance (in grey shading) on DOC managed PCL – essentially operational areas 1-6.** Image source: BML via Google Earth.

*Note: Glenary Station location is incorrect.*

A useful development for the programme would be an aerial herbicide treatment for wilding conifer infestations located under medium density native tree canopy cover. If off-target effects can be minimised it could be a cost effective tool for multiple ongoing maintenance cycles, to exhaust seed banks.

#### Water quality and monitoring effects of spraying

The National Programme through MPI requires water sampling to be undertaken following aerial boom spray operations (AFSA method) to ensure that drinking water standards (measured by Environmental Exposure Limits, or EELs) are not exceeded. It is important for the Trust's continued social license to operate that EELs are not exceeded.

Prior, MPI instigated a 20 metre setback rule from water courses to prevent herbicide runoff entering surface water and surpassing the thresholds set, as determined through downstream monitoring. The rule was recently reviewed, with MPI currently requiring that aerial spraying must not encroach any closer than 50 metres of any stream or waterbody. This presents a constraint for Mid Dome particularly in the Mataura catchment where each small tributary watercourse must have a 50m setback applied either side of the channel.

Figure 8 shows two of three wilding conifer stands that were set up for boom spraying in the 2020/21 season in the Tomogalak catchment. The blocks had been 'squared off' in anticipation of control. The work was deferred and due to the new setback requirements the areas required ground control. This increased the overall cost and effort involved because ground control costs are highly variable (e.g. depends on access, terrain, time taken, remoteness and tree growth form).

There was MPI agreement to have a 30 m setback, with a change of nozzles needed to produce bigger droplet sizes. However, the Programme Manager was reluctant to make this change due to better operational results from using the smaller droplet sizes.

A blanket 50m setback regarding every water course in the operational areas is an unhelpful impediment for the Trust's future control programme. However, it is noted that on the west and northern areas of Mid Dome, water supplies to the Five Rivers area are dependent on runoff from Mid Dome so it is appropriate for the 50m EPA/MPI rules on setback to apply there<sup>19</sup>.

Given the small area within the Mataura River catchment to be treated it is questioned whether an elevated amount of herbicide would be detected. It is recommended that exemptions could be investigated by the Programme Manager in the future, on a site by site basis, where it is not feasible or uneconomic to employ alternative control measures.

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<sup>19</sup> The Programme Manager's experience to date on this issue indicates that the issue is less to do with setbacks from waterways and more to do with heavy rainfall events, which mobilise the herbicide in the leaf litter and hence soil into the waterways.



**Figure 8: A small tributary of the Tomogalak Stream on the Jollies pastoral lease (close to boundary with Lowther Downs) showing two wilding pine blocks previously prepared for aerial control (middle). The current 50m setback rule is having an effect on control outcomes in that ground control was needed to control these sites. Photo: BBSL.**

## 4.6 Maintaining operational capabilities

### Overview

The Mid Dome project has benefited for many years from having highly competent, skilled and engaged contractors, both ground and aerial operators. It is vital for this next Strategy iteration to retain an experienced contracting base that has been established.

### Observations (current situation)

The Programme Manager currently uses three ground control contractors at Mid Dome (Figure 9), with others available (via a panel of providers) that are capable of undertaking ground control. Casual, local contractors also assist with non-control work, such as track maintenance, water sampling, security, water infrastructure at the load site and logistical support getting chemicals and equipment to and from AFSA load sites. With regard to track maintenance, the programme Manager works in with landholders to share and reduce costs and will generally use the contractor that the landholder prefers.

A long standing aerial supplier has undertaken all aerial spraying work in recent years, both AFSA (Figure 10) and ABBA methods. When on site for ABBA work they also provide aerial transport for ground control crews, specifically lifting team members into remote locations on a daily basis to make work more efficient. When the key operator is not on site ground control contractors use a local aerial supplier to take crews into blocks. Other helicopter companies capable of delivering both ABBA and AFSA at Mid Dome can be used if needed.



**Figure 9: Ground contractors high up on the flanks of Mid Dome.** Photo source BML.



**Figure 10: Aerial spray operator reloading for another AFSA round.** Photo source BML.

The main control contractors used at Mid Dome are very experienced and do significant wilding conifer work in other parts of the country. They are all professional, full time biosecurity contractors, with good systems and well trained/qualified staff.

Regarding aerial control, there will still be areas requiring AFSA retreatment. In 2021, 700 ha. was completed; 2022 saw 320 ha. sprayed and in 2023 this reduced to 270 ha. Any future spot spraying would be tied in with the AFSA programme.

#### Considerations for the future

Based on the funding model developed (section 6) the Trust is in a good position regarding future contracting control services. Cheaper, local alternatives for accommodating workers should be investigated. A large proportion of funding is spent on travel and accommodation, which could be saved through using local alternatives.

In the latter parts of the 10 year Strategy there is significant ABBA work forecasted. However, a single operator could 'chip away' at this method for three months of the season, even allowing for down time due to poor weather. Although, with considerable ABBA work anticipated the work could be split between two contractors to retain cost efficiencies and to spread the risk. Further, the use of drones to work in and deliver herbicide to tight and sensitive areas may become available, to support ABBA work.

The ground control component of work is by far the biggest part of programme and there are some significant budget implications right through to Year 7. Ground control builds through the first 2-3 years which will enable contractors to anticipate work and build capability and capacity within their work forces<sup>20</sup>. Essentially, capacity building needs to commence in Year 1 with a fourth ground control contractor brought into the main Mid Dome pool<sup>21</sup>.

The biggest operational issue faced is the seasonal nature of working at Mid Dome. Work through the winter months is prevented due to weather and increased health and safety risks, then lambing is relatively late in the year. Accessing hill country cannot occur until early November. There is a current agreement with landholders, including DOC, that no work occurs for all of April to allow for hunting and this is hampering control work through often settled weather periods<sup>22</sup>. Therefore, the main season for all activities is November to March. Some completion work is often required in May.

For contractors to have a large team of staff for these months they also need to keep them employed for the rest of the year elsewhere (which is outside of the Trust's ability to influence).

#### Key risks to address

- Ground control contractors not being able to retain skilled staff.
- Health and safety risks working in steep, remote country and potentially large costs associated with controlling pines in waterway exclusion areas.
- Potential loss of TDPA or other herbicide mixes suitable for boom spraying contorta pine.
- Budget reductions impacting contractors workflows and therefore their ability to retain skilled staff.
- Insufficient budgets will lead to growth in the size and density of infestations, making it harder work for contractors in the long-term.
- Douglas fir and other production forests spreading seed via wind will be an ongoing challenge.
- Maintaining a social licence to operate in this area and destroy introduced trees through herbicides and other tools.

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<sup>20</sup> Based on budget only, the proposed Year 1 ground programme would be bigger than for any other year to date.

<sup>21</sup> This is not expected to be difficult given the depth of contractors on the current supply panel.

<sup>22</sup> This position is overly restrictive, especially if pressure is on to complete a programme of work. DOC should be asked to review this condition. April often provides a good weather window for control.



## 5 OTHER ISSUES AND RESPONSES

### 5.1 Community and landowner engagement

Genuine community participation is required to win ‘hearts and minds’ for the Mid Dome project and to ensure that ongoing funding is available to deliver the operational programme, especially given the proposals outlined in this document.

Current (and potential funding) sources are centred around the project continuing to be a community-led exercise. Furthermore, it is vital that all stakeholders are invested in the project goals and vision, to ensure that they maintain the project outcomes into the future, following the Trust’s incremental handover of operational areas to occupiers.

The role that the Trust plays in community engagement is important but has been ‘underdone’ in recent years. A coordinator position was funded until 2016 but was not continued with when that person left. Since then, at AGM's, community open days were offered but historically not well attended. It was often left to trustees to raise the Mid Dome profile within their own networks. The reality of an operation of this scale is that the Trust is fully engaged on overseeing operational matters and there is no capacity to undertake wider engagement. And, apart from supporting volunteer/field days, community coordination is necessarily not in the contract brief of the Programme Manager.

The Trust has an excellent relationship with ES but work outputs are not systematic (refer next section). ES is the only agency in the position to provide the level of coordination required, potentially on the back of their wider environmental education role. This extension service, coupled with the increase in expectation around post-handover management to occupiers, should encourage ES to consider resourcing such an advocacy role. This approach would serve several purposes, including assisting with landowner understandings around the transitioning from Trust control to occupier control, and importantly to provide warnings around what is at stake if the project was to founder.

The Trust calls for ES to engage a co-ordinator to further develop the community-led bases of wilding conifer control projects, potentially as part of implementing the wider Southland Wilding Conifer Strategy (in development). The role would be required to deliver the agreed extension services in line with written performance specifications between parties and ES. Likely services could include: volunteer control days, annual landowner meetings/BBQ events and organised / targeted flyovers of the area to help tell the Mid Dome story.

#### Lone pine trees – perceptions

Large parts of the Mid Dome operational areas are clear of wilding pines and the control work achieved is obvious, especially those areas within the immediate community and public eye (e.g. as viewed from SH 6). During the Strategy review it was observed that on several properties individual pines or clusters of mature pine trees remain (Figure 11).



**Figure 11: A lone, mature pine stands out on the Slate Range area's horizon.** Photo source: BBSL, November 2022.

Although arguably a minor matter in the scheme of the wider project, these occurrences of 'old man' *P. radiata* could pose a perception issue for community members and potential future funders. Remaining conifers may also contribute to ongoing seed spread within the project area (through climate change) although the probability or extent of this occurring cannot be verified.

The Trust will monitor the situation over the first two years of the Strategy, consider practical approaches to address perceptions around this issue and undertake dialogue with relevant land occupiers, as appropriate.

## **5.2 Support required from Environment Southland**

For this Strategy to be successful a fundamental yet stepped-up relationship is required with ES, operationally and politically. Throughout the Strategy relationship issues and requests are discussed where relevant. This section summarises in one place the actions and support sought from council.

- The Mid Dome project is an important component in the development of a regionwide Wilding Conifer Management Strategy. The Trust expects ES to consult fully with them on issues involving Mid Dome directly, but also regarding issues and expectations around other wilding conifer management areas and considerations in the region.
- Maintaining adequate funding for ongoing control is a key challenge. The Trust appeals for active support from council, as the regional fund holder, to influence Government to provide sufficient funding to see the Mid Dome project through to its completion.
- Dialogue with, and involvement of, iwi in decision making will be increasingly expected for projects of this nature. The Trust supports ES in forging stronger ties with iwi entities on numerous conservation projects, including the high profile Mid Dome project. Lobbying government to maintain the required funding through one consolidated voice is crucial for success and strong iwi support is vital to achieve this.
- As a leader in regional biosecurity, ES needs to spearhead engaging with stakeholders (e.g. district councils, government agencies and forestry companies / forest owners) on wilding conifer issues, especially regarding the reinvasion risks posed to Mid Dome from commercial forestry operations (and other management areas that may be impacted).

- At an operational level there needs to be close connections and precision planning carried out between the Trust, the Project Manager and ES regarding transition processes and timings for handover of control to occupiers.
- Before transitioning to occupier control occurs ES needs to develop specific monitoring and compliance procedures to guide those who will be undertaking property inspections, to ensure compliance with RPMP rules. ES has an obligation to ensure the RPMP rules are adhered to and amending them where required to meet the realities of ongoing management.
- To assist with the above transitioning work, provision of a community co-ordinator resource within council is recommended, to liaise and advocate between the Trust, affected landowners and the wider community.

### **5.3 Monitoring and auditing**

#### Operational monitoring/audit

The Trust has expressed the need to have better a quantitative measurement of deliverables. The Programme Manager provides excellent data in terms of inputs for control operations, e.g. aerial spraying coverage, helicopter spray time and ground contractor outputs (e.g. tracklogs received and randomised auditing - 200 m transects through control blocks), which is supported by accomplished GIS mapping, photography and statistical analysis. There are complexities, however, associated with monitoring the effectiveness of operational deliverables. For example, once a ground crew has completed a sweep of an area and achieved an estimated 90 percent reduction in wildings, above 30 cm in height, there can be a mass of seedling germination that becomes apparent by the following Spring. Similarly with AFSA, the effectiveness of an operation may not show up for 1-2 years in terms of full mortality.

An option the Trust will consider during the first half of the Strategy period, in terms of measuring overall operational effectiveness, is to commission an independent audit by SCION or AsureQuality (or similar agency) to evaluate all operational processes for efficiency and effectiveness.

#### Trend monitoring

This type of monitoring involves the longer-term evaluation of the project regarding, for example, zero density/eradication milestones, clearance of outlier areas, shrinkage back to the core area and biodiversity changes. Investment in this area has been limited and this Strategy and focus provides an opportune time to ramp up activities. Photo point measurement commenced during Alan Mark's tenure on the Trust but has not been continued so a comprehensive record of achievements is maintained. DOC has protocols for biodiversity outcome monitoring, however Mid Dome may not be a site where regular data collection is or could realistically be scheduled<sup>23</sup>.

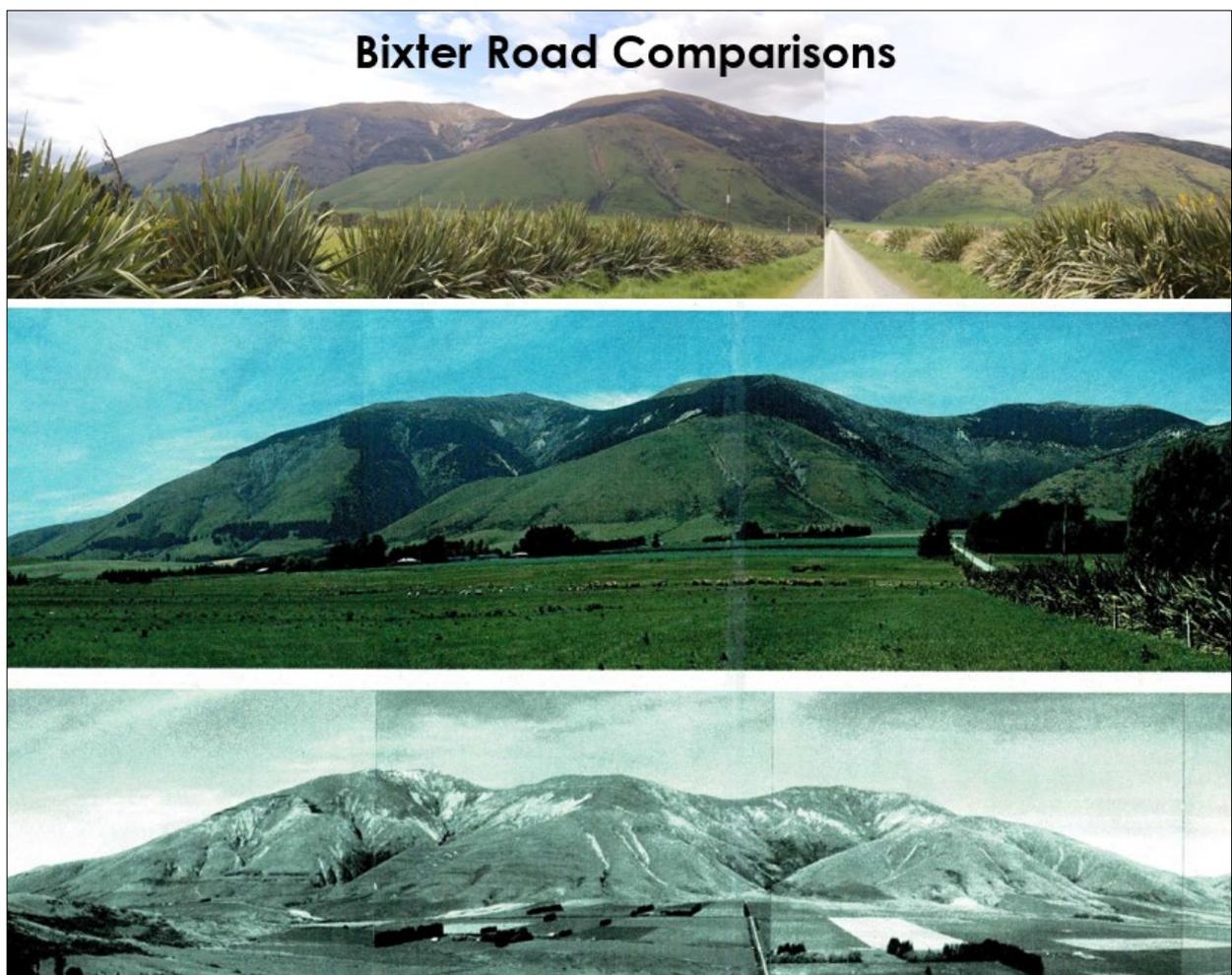
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<sup>23</sup> DOC also has monitoring protocols for weed / tree management which should be utilised where possible.

No recent<sup>24</sup>, regular and repeated (before and after) monitoring, via vegetation transects or vegetation plots, has taken place to document native revegetation or wilding seeding establishment post control operations. While such work could or should have commenced many years prior, vegetation monitoring could still be instigated. Ideally, this work would be suited to a university graduate with the ability to have continuity of work. However, this may prove difficult unless a university faculty specifically contracts the work. The Trust will consider stepping up more interest and research in this area, especially with the concerted ‘push’ to achieve zero density of operational areas under this Strategy.

#### Monitoring using photopoints

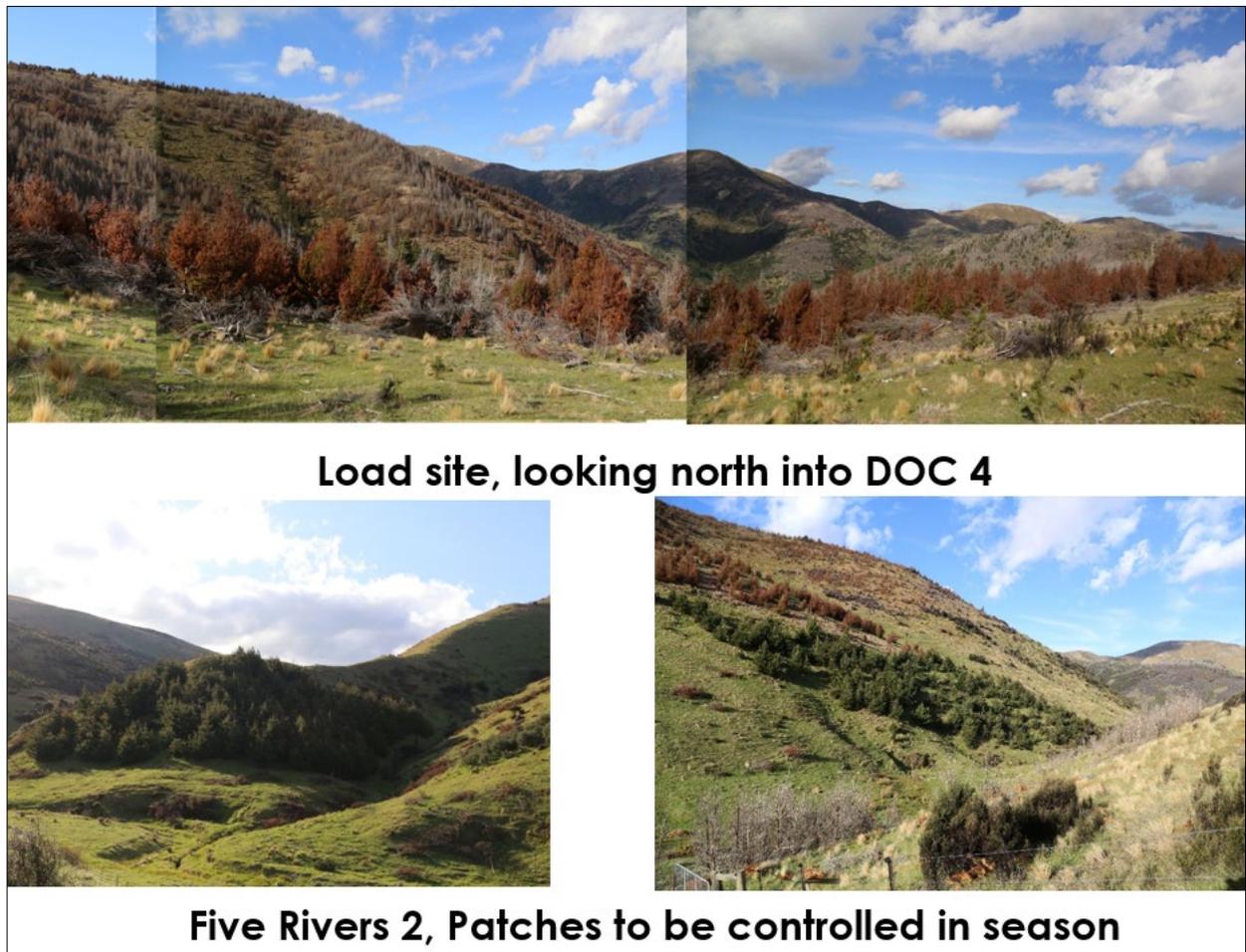
Sequenced photos in Figure 3 showed the progressive nature of wilding spread and then response to control in the Tomogalak catchment. This is an important component of ‘telling the Mid Dome story’ and a good visual way to demonstrate progress with the project. The Trust (via formation Trustee Alan Mark) established many photo points early on in the project and has since carried on some of the historic photo point monitoring (e.g the Tomogalak and also Mid Dome ‘front faces’ from Bixter Road – refer Figure 12).



**Figure 12: Repeat photo monitoring of Mid Dome from Bixter Road – top in 2022 (current), middle in 2003 showing much tree spread and bottom image showing (bare) slopes – date circa 1962. Image source BML.**

<sup>24</sup> DOC did this historically for many years before BML took over project management. Some monitoring may be able to be repeated using the same methods to compare data.

A series of new photo points were recently established as requested by the Trust, for promotional purposes. They are a seasonal ‘before and after’ control scenario, i.e. providing a consistent method of monitoring of control works set up on vantage points of management areas undergoing control (ground and AFSA) in the 2022/23 season (Figure 13). These are not used for quality assurance or any numerical purpose but nonetheless will be useful to reflect back on during this Strategy’s implementation.



**Figure 13; Example photo points established in DOC 4 and Five Rivers 2 operational areas to be treated 2022/23. Exact points are marked by coloured waratah with marking tape naming the location, and management units photographed. Image source: BML.**

It will be extremely useful to compare and update the historical and current photographic data.

#### **5.4 Land tenure rationalisation**

As a result of historic land management policies the Mid Dome Soil Conservation Reserve was established in response to severe soil erosion events in the 1940’s and came under the jurisdiction of the Soil Conservation and Rivers Control Council (SCRCC). The affected land was previously leased from the Crown under a pastoral licence which was revoked and over time the bulk of the land passed from the Commissioner of Crown Lands to the Ministry of Works (via the SCRCC). As the soil conservation works were implemented some land was deemed suitable to resume grazing during a period that coincided with government land reforms. As a consequence,

some areas transferred to the DOC and residual areas of the Soil Conservation reserve passed to what is now LINZ, which is charged with administering Crown land and pastoral licences.

During this period of reform, the seeding of contorta pine from the original soil conservation plantings became prolific and advanced the spread of wilding trees particularly in a south east direction. Although DOC commenced a control programme in the late 1990's with ground control and aerial spraying it became apparent that a large-scale control programme was necessary. Accordingly, the Trust was formed in 2006 as a result of community concerns over the wilding spread.

As the Mid Dome zero-density control programme advances, through this Strategy, it is prudent to consider land tenure issues to ensure that once control is handed back to landowners appropriate follow up maintenance control is undertaken. There will be areas suited to grazing under a pastoral lease, however stringent conditions must be placed by LINZ on lessees to ensure wildings are removed each year, with penalties if any coning trees are detected. Other areas are best left to revert to native tussock and colonising shrub and tree associations and are appropriate to be managed by DOC, providing the Department is funded adequately to undertake wilding removal in what is difficult and challenging terrain.

To achieve a clear responsibility around future maintenance obligations Environment Southland (in conjunction with the Trust) should be encouraged to enter into very specific and categorical agreements with both LINZ and DOC, as they will do for private landowners transitioning out of the National Programme. If the Good Neighbour Rule only approach to ongoing Crown obligations at Mid Dome is taken the whole project will be placed in jeopardy.

The Trust is well placed to facilitate discussions between private landowners, LINZ and DOC to examine title boundaries with a view to adjusting tenure to best suit long term maintenance and biodiversity objectives for the region. There will be areas that private landowners may be willing to relinquish to add to the public conservation estate, and potentially LINZ could surrender or transfer high biodiversity valued areas to DOC so they can concentrate on administering the pastoral lease areas.

## 6 MODELLING AND FUNDING FOR THE FUTURE

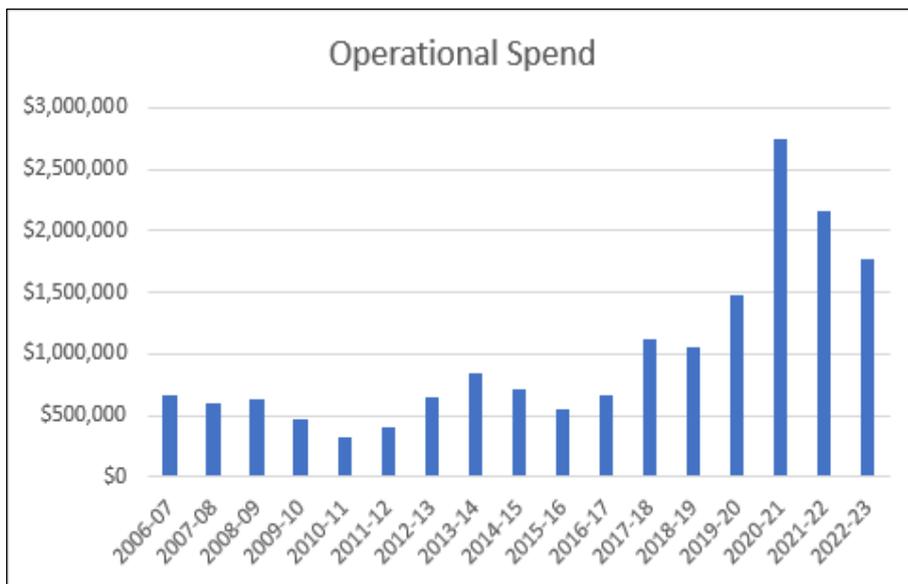
### 6.1 Introduction

The costs of delivering the Mid Dome programme since 2006 has varied according to a number of operational and social factors, including:

- Ongoing development (and improvement) of control methods (ground and aerial);
- Introduction of new methods;
- Success or failure of any particular method;
- Costs of adopting quantitative sampling;
- Variations in the level of seed reinvasion into an area;
- Residual seed bank following control, and
- Management costs and services provided.

The operational spend on Mid Dome, using combined data, has been just over \$17 million (\$17,004,310) within a period of 17 years (Figure 13). *Note: this includes the DOC spend as a lump sum prior to 2006, which cannot be broken down to individual years.*

**Figure 13: Mid Dome operational expenditure 2006-07 to 2022-23.** Source: Mid Dome Trust.



After a long period of chronic underfunding, the greatest outcome for the Mid Dome project was the development of the National Wilding Conifer Strategy in 2014 and funding programme from 2016 onward. This raised the annual funding level for Mid Dome control work to over \$2M (for 2017/18 and 2018/19) which was finally to an acceptable level. The project was further enhanced with a three-year ‘front-loading’ of budget expenditure (2020-21 to 2022-23) resulting from the post COVID-19 recovery and the Government’s Jobs For Nature (J4N) initiative.

This boost in funding, combined with having known, proven and more efficient control methods saw excellent progress made on control programmes, targeting the remnants of the primary and secondary seed sources and other wilding pine reinvasion issues.

The costs of delivering the programme, moving into the next decade, will vary the most according to the flow of funding. This Strategy seeks to build on the impetus shift that was created through J4N by proposing the ideal, best case control scenario to 'complete the job'. This section sets out:

- Anticipated timeframes for the transition of operational areas from Trust control to occupier control; and
- Estimated budgets, by year and by method, for the 10-year Strategy period.

A number of assumptions and risks are explained, along with statements from two key government land occupiers and funders (DOC and LINZ) regarding their future support for this project.

Mid Dome is still a 'legacy site' in that initial plantings of contorta pine were made and funded through prior Government programmes. It is important for the Trust and wider community that the Government continues to accept its ongoing involvement and provide equitable funding to remedy historic land management decisions and practices (refer also to section 6.4). It is also acknowledged that latter plantings in the Mid Dome wider environs are not Government legacy problems but as a result of RMA facilitated plantings. Combined, these wilding issues will continue to create ongoing concerns for the future.

## **6.2 Transition timeframes**

The goal of the Trust is to hand back ongoing control responsibilities to occupiers once satisfactory levels of control have been achieved. Section 3 prior set out the Strategy goals and objectives, noting when transitioning would occur. This section explains these progressions further, which tie in with the funding required.

Table 5 graphically shows the Mid Dome MUs and operational areas of interest:

- East of the Mataura River operational areas transfer to the latest occupier maintenance obligations under the new RPMP regime during year 1.
- Flagstaff Management Unit will see a further period of four years of control before a full survey and then transition of operational areas to occupiers, by July 2028.
- The Mid Dome MU is the most difficult to predict transitions. Earliest areas to transition will be Cattle Flat 1, Five Rivers 3, Nokomai 1, DOC 1 and large areas of DOC 2 and 6. Last areas to be completed will be Cattle Flat 2 and 3, DOC 3, 4 and 5 and LINZ 1 and 2. Five Rivers 1 and 2 will also require sustained work well into the Strategy period.

**Table 5: Timeframe of predicted transitioning from the Trust to land occupiers.**

Operational area	Yr 1 23-24	Yr 2 24-25	Yr 3 25-26	Yr 4 26-27	Yr 5 27-28	Yr 6 28-29	Yr 7 29-30	Yr 8 30-31	Yr 9 31-32	Yr 10 32-33
<b>East of Mataura River (formally within Mid Dome MU)</b>										
Glenaray 1	All ongoing control to be transitioned to owners/occupiers by June 2024, under Southland RPMP rule requirements and ES procedures – to be developed									
Glenlapa 1										
Moonlight 1										
Nokomai 2										
DOC 7										
<b>Flagstaff MU</b>										
Flagstaff 1										
Flagstaff 2										
<b>Mid Dome MU</b>										
Cattle Flat 1										
Five Rivers 3										
Nokomai 1										
DOC 1										
DOC 2										
DOC 6										
Cattle Flat 2										
Cattle Flat 3										
DOC 3										
DOC 4										
DOC 5										
LINZ 1										
LINZ 2										
Five Rivers 1										
Five Rivers 2										

Key	
	Control by Mid Dome Trust
	Survey / transition – denotes that the area could be handed back to occupiers by ES, but should it be?
	Full hand back to occupier

### 6.3 Preferred (best case) scenario

Table 5 showed likely dates when ongoing management hand backs to occupiers are anticipated. The following tables show in detail the modelling carried out to allocate budget expenditure for the 10-year strategy period, in order to progress hand backs – for Mid Dome then Flagstaff.

#### Mid Dome Core MU

Table 6 shows that to complete the work, to a full handover to landowner point, will cost just under \$20M. This is a realistic version funding model of the ‘ideal’ scenario. The budget is ‘front loaded’ in an attempt to knock down the difficult (expensive) areas first. It cascades down through the treatment methods/levels and each hectare gets treated at each level. For example, the general run of work sees AFSA work flow onto ground work, then onto ABBA work for maintenance. Ground control peaks in Year 3 at just over \$2M and overall this method comprises 80 per cent of the operational costs. Several key assumptions accompany the table.

**Table 6: Estimated 10-year budget (operational and indirect expenditure) developed for Mid Dome Core MU, based on preferred (best case) funding scenario.** Data source BML, July 2023.

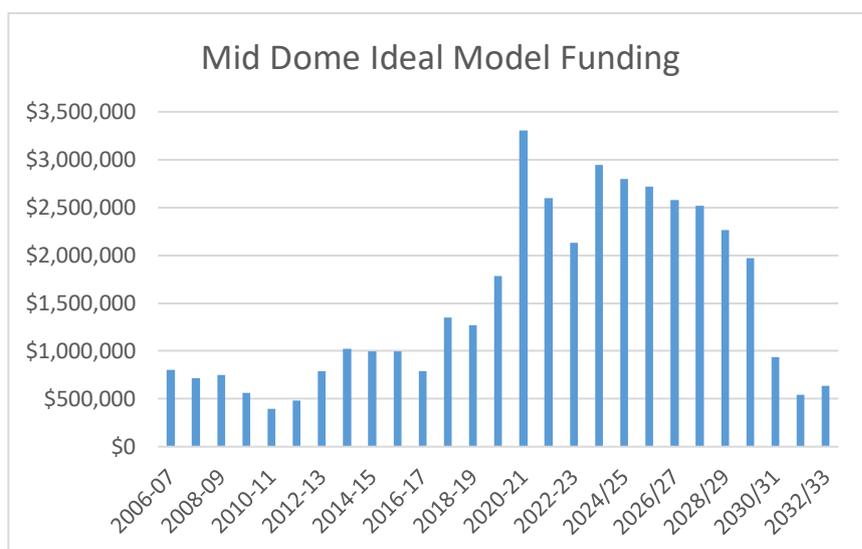
Year	FY	ABBA (\$)	Ground (\$)	AFSA (\$)	Indirect costs	Total budget (\$)
1	2023/24	\$392,000	\$1,594,000	\$414,000	\$541,780	\$2,941,780
2	2024/25	\$156,716	\$1,950,177	\$193,200	\$497,640	\$2,797,733
3	2025/26	\$131,041	\$2,068,708	\$0	\$515,838	\$2,715,587
4	2026/27	\$284,909	\$1,814,261	\$0	\$481,417	\$2,580,587
5	2027/28	\$173,625	\$1,824,697	\$0	\$522,265	\$2,520,587
6	2028/29	\$194,724	\$1,655,078	\$0	\$416,136	\$2,265,938
7	2029/30	\$319,816	\$1,281,686	\$0	\$365,951	\$1,967,453
8	2030/31	\$204,026	\$462,302	\$0	\$268,803	\$935,131
9	2031/32	\$406,000	\$0	\$0	\$136,540	\$542,540
10	2032/33	\$453,000	\$0	\$0	\$179,970	\$632,970
<b>Totals</b>		<b>\$2,715,858</b>	<b>\$12,650,908</b>	<b>\$607,200</b>	<b>\$3,926,340</b>	<b>\$19,900,306</b>

#### Assumptions:

1. This model was built by the Programme Manager, economists were not involved. It is a ‘simplified model’ and the inputs are a best guess. It excludes ES, DOC, LINZ and any landowner costs so doesn’t reflect the true scale of the funding requirements.
2. The model notes the unlikelihood of the Trust receiving any more than \$2.5M direct operational funding per year and takes into account the realisms of contractor capacity to be able to carry out the work.

3. Indirect costs are included to provide a complete budget estimate picture. These costs include Programme Manager management fees and non-control costs (e.g. track maintenance, aerial survey, hut maintenance and aerial imaging).
4. Costs are not inflation adjusted, however a percentage could be added as a multiplier.
5. The model does not directly deal with increasing infestation, increasing density (e.g. stems per hectare) or increasing difficulty of control (for example moving from hand tools to chainsaws as trees grow larger).
6. There is a full round of ABBA (level 1) every three years. All areas get at least one round of Level 1 ABBA (so all areas receive ABBA twice before hand back).
7. The Mid Dome Core area is based on a total of 18,007 ha, but includes 1,564 ha. of land which will never be treated (e.g. it is beech forest or high developed pasture).
8. The model has an 'R' value as a multiplier included if any given hectare is not treated in a year (e.g. the R value in the model represents the increase in hectares and density by increasing the cost of the original hectare if that hectare is not controlled). R values are applied through the cascading levels of control.
9. Years 9 and 10 sees ABBA control brought ahead of the triennial control regime (with increased costs) in an attempt to cover the whole core of the Mid Dome Core MU before hand-backs occur.
10. The model assumes excellent control and coverage and does not take into account poor performance from a contractor or 'missed' trees.
11. Reinvasion can and will occur from external seed sources but there is no accurate way to factor in these externality costs, except noting that some wind-spread seed will be destroyed through operations over the next decade.

Figure 14 depicts the ideal funding scenario for Mid Dome, following on from figures presented in Figure 13.



**Figure 14: Predicted Mid Dome MU expenditure to 2032-33.** Source: MDT.

## Flagstaff MU

Table 7 shows that to complete the work in both Flagstaff operational areas, to a full handover point, will cost \$601,450. Like Mid Dome Core figures, this is a realistic funding model of the 'ideal' scenario. Similar principles and assumptions also apply, such as ground work moving onto ABBA work for maintenance in later years. The biggest risk for success at Flagstaff, like other areas, is the 'seed rain' and understanding where these reinfestations are coming from.

**Table 7: Estimated 5-year budget (operational and indirect expenditure) developed for Flagstaff MU, based on preferred (best case) funding scenario.** Data source BML, July 2023.

Year	FY	ABBA (\$)	Ground (\$)	Indirect costs	Total budget (\$)
<b>Flagstaff 1</b>					
1	2023/24		\$80,000	Yr 1 = \$37,100 Yr 2 = \$11,800 Yr 3 = \$5,850 Yr 4 = \$5,400 Yr 5 = \$6,300	\$80,000
2	2024/25	\$60,000			\$60,000
3	2025/26				\$0
4	2026/27	\$60,000			\$60,000
5	2027/28	\$30,000			\$30,000
<b>Sub total</b>		\$150,000	\$80,000		
<b>Flagstaff 2</b>					
1	2023/24	\$160,000		Above figures are spread across both Flagstaff operational areas	\$160,000
2	2024/25		\$40,000		\$40,000
3	2025/26	\$65,000			\$65,000
4	2026/27				\$0
5	2027/28	\$40,000			\$40,000
<b>Sub total</b>		\$185,000	\$120,000		
<b>Totals</b>		<b>\$335,000</b>	<b>\$200,000</b>	<b>\$66,450</b>	<b>\$601,450</b>

### Assumptions:

1. This model was built in a similar manner to the Mid Dome MU and the inputs are a best guess over a five year period, until transitioning to landowner control occurs.
2. It includes a partial management fee (indirect costs) but no other indirect costs. The figures assume that Flagstaff MU is managed in conjunction with Mid Dome MU regarding any other non-control costs required (e.g. aerial survey, track maintenance).
3. If Flagstaff became a standalone project, then there would be a need for other indirect costs to be included.

**In total, \$20,502,000 is required over the next ten-year period to achieve the Trust's goals in both the Mid Dome and Flagstaff MUs.**

## 6.4 Crown agency commitments

It is important for the Trust to understand to what extent the Crown agencies, as significant land occupiers, will be involved with ongoing maintenance work at Mid Dome and to document all discussions and agreements. Crown land areas within the Mid Dome core area contain the most longstanding and arguably worst infestations and achieving zero density in these places is critical to the success of the project. The following statements are made by DOC and LINZ.

### Department of Conservation (Te Papa Atawhai) statement

*As a land manager within the Mid Dome catchment, Te Papa Atawhai continues to support the Mid Dome Wilding Conifer Trust and values the important mahi the Trust undertakes. Te Papa Atawhai's financial support will be confirmed on an annual basis. Te Papa Atawhai has a long-term role in biosecurity and will continue to play its part in working with the trust and other partners and stakeholders in the management of wilding conifers.*

### Land Information New Zealand (Toitū te Whenua) statement

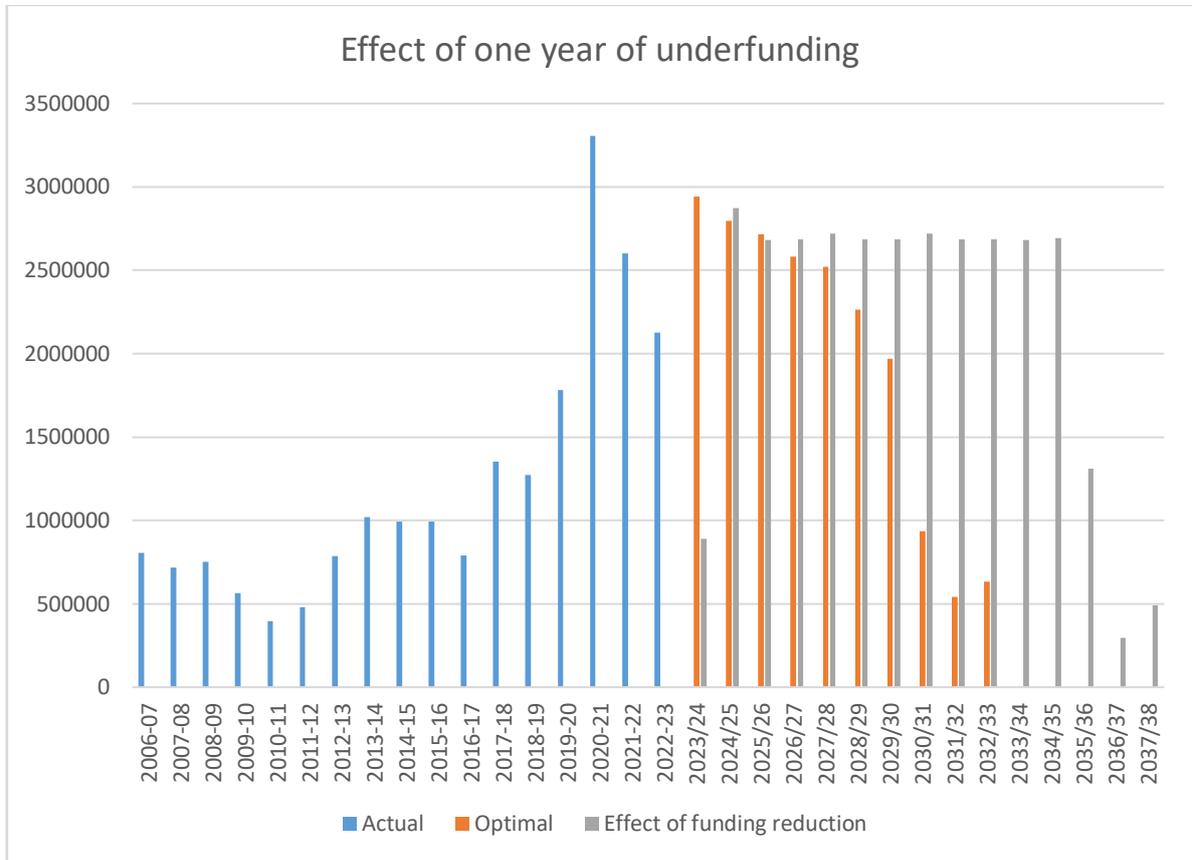
*"Toitū te Whenua Land Information New Zealand (LINZ) is currently reviewing budgets and as per our funding agreement with the Trust, will shortly advise our funding intentions for 2023/24. In the longer term, our biosecurity priorities are guided by our own Biosecurity and Biodiversity Strategy with detailed operational plans based on resources available, and like other agencies, we are seeking guidance on what future funding will be available when current funding programmes finish. In the shorter term, we look forward to continuing in our partnership with the Trust and its partners over the coming year".*

## 6.5 Risks of Strategy underfunding

There are a number of inherent risks to the programme if the above funding levels are not met or cuts are made:

- × 'Backsliding' will occur – work put off will cost more in the longer term.
- × The ability to maintain the gains of prior work could be compromised or lost if work is stalled or underfunded. A 'bow-wave' of required work would be created.
- × Prioritisation of where to spend limited funding will mean trade-offs in control, some areas may miss out altogether.
- × RPMP objectives may not be met, or severely compromised.
- × The above issues may impact landowner engagement – e.g. a reluctance to accept ongoing responsibility in the face of uncertainty over the Trust's programme end date.
- × Underfunding would seriously impact ground control contractor availability and a loss of that base that has been well built up over time. Contractors could move elsewhere.
- × Wilding pine reinvasion unknowns will continue and underfunding could lead to reinvasions quicker than they can be dealt with.

Figure 15 shows the significant impacts of reduced funding for just one year in the Mid Dome MU if the best case scenario estimates are not implemented (as shown in Tables 5 and 6 and Figure 14). Essentially, there is quite some delay in control work through to project completion (e.g. an extra five years, until 2037/38) and significantly increased costs (e.g. from \$20M to approximately \$33M), creating a substantial bow-wave of anticipated work to complete.



**Figure 15: Predicted bow-wave of expenditure as a result of a 70 percent funding reduction in Year 1, based on the current proposed budget scenario from 2023/24.** Data source MDT, August 2023.

## 7 CONCLUSION AND RECOMMENDATIONS

### Conclusion

The Mid Dome wilding conifer control programme has been highly successful to date. Accordingly, the Trust is recognised nationally as a leader in how to undertake community-led wilding conifer control. The essence of success has been developing and maintaining an effective partnership of diverse stakeholders and agencies, along with experienced and hard working project managers and contractors, to address a very large scale, long term environmental problem.

However, the work is far from achieved and a lot of effort remains over the next decade, with an estimated cost of \$20.5M (in 2023 terms). While maintaining the gains of prior work is most crucial, along with adequate funding to 'complete the job', ongoing, sustainable funding is not the only challenge. The following recommendations are made as a result of proposals and concepts outlined in this Strategy and are grouped under four key headings: relationships, funding and strategy, operational matters and internal matters.

### Relationships

1. That the Trust continues to **build and maintain rapport with Environment Southland**, politically and operationally, regarding moving to a different, and arguably more important, phase of the overall project where collaboration is crucial.
2. That the Trust establishes and maintains a good **working relationship with both Te Ao Mārama Incorporated and Kaitiaki Rōpū o Murihiku**, to widen awareness of the importance of the Mid Dome project and to consolidate support for ongoing adequate funding.
3. Regarding landowner and community engagement, there has never been a more crucial time to **maintain community support for the project**. The Trust has a clear role in engaging more with landowners in key operational areas, and the wider community, to highlight: (i) the excellent work that has occurred; (ii) what is needed to complete the project; and (iii) what is at risk if there are issues and delays with completing the project.
4. In terms of **reinvansion risks to Mid Dome from any plantation and permanent forests**, in proximity to Mid Dome, the Trust should take the following actions:
  - Partner with Environment Southland to engage with all forest owners within the high-risk areas of seed spread to open dialogue on the issues that must be addressed to avoid seed spread and reinvansion of cleared areas.
  - In collaboration with an Environment Southland facilitated forestry working group (and others, e.g. DOC) develop policy for a competent surveillance programme, removal of seed spread risk trees, removal of seedling wildings, replacement of seeding shelter trees, and an equitable funding contribution from forestry interests to maintain Mid Dome free of seed rain wildings.
  - Lobby for the wilding tree risk calculator, contained in the NES for Plantation Forestry to be urgently reviewed to address anomalies that have arisen from its use

- (e.g. adjusting the settings in the calculator especially where wilding risk is high and strengthen requirements around who is qualified to use it).
- Collaborate with Environment Southland to urge Southland District Council to ensure that plantation and permanent forest consents issued by them are being appropriately managed (in terms of wilding spread risk management) and that stipulated consent monitoring is carried out.
  - Submit on the upcoming Southland District Council District Plan review (provisionally 2023-2024) with a view to requiring more stringent rules and controls on future plantation and permanent forest location and landuse parameters.
5. Liaise with Land Information New Zealand to ensure that wilding conifer management is **embedded in all Crown pastoral lease agreements** and that a suitable monitoring regime is in place with lessees.

### Funding and strategy

6. The Trust has a **responsibility to secure sufficient funding** to complete the wilding zero-density programme which establishes a transition process to handover obligations for maintenance works to individual landowners, including the Crown agencies.
7. That the Trust adopts and promotes the **best case funding scenario**, of \$20.5M over a ten-year period, to complete the agreed work programmes and the project.
8. The Trust should continue to **seek a broadening of its funding base**, e.g. through widening their approach to philanthropic funders and the Southland community.
9. That the Trust supports ES in the **development of a Regional Wilding Conifer Strategy** for Southland and recognises the benefits of the Trust and ES being aligned with similar management objectives.

### Operational matters

10. Concerning **transitioning from the Trust run control programme to private occupier long-term management**:
- That by December 2023, with the Trust's assistance, ES revisit, develop and formalise landowner (transition) management plans for all operational areas East of the Maitua that: (i) reflect individual property situations; (ii) clearly outline the maintenance obligations on landowners/occupiers; (iii) are aligned with the RPMP wilding conifer rules and compliance regime; (iv) are consistent with the broad *Transition Guidelines Criteria* being developed nationally; and (v) document the support ES will provide, including monitoring of plans via property inspections.
  - That ES builds capacity to work closely with 'transitioned' land owners, to provide an (i) an appropriate level of ongoing advice and support; and (ii) resource the requirements of the above monitoring and compliance programme.

11. That the Trust facilitates discussions with LINZ, DOC and affected landowners to **rationalise land tenure** with a view to optimising long term maintenance obligations.
12. Regarding deficient RPMP wilding conifer rules, that the Trust **advocates to MPI, via ES, of the need to streamline these rules** nationally, but especially:
  - To reconsider prior guidance that had developed practical ‘clear land rules’ to protect risk areas in regions currently free of wilding conifers; and
  - Consider ways to compel the plantation forestry sector to be bound to a pest agent rule, whereas currently this rule exempts the sector.
  - Consider developing a national pest management plan with generic rules
13. That the Trust should consider the **issue of perception** (for outside people viewing the project without in-depth knowledge) of having or allowing individuals or clusters of ‘old man pines’ to exist within the operational areas.
14. Regarding contractor capability and capacity, that the Trust works closely with the Project Manager to consider initiatives that nurture and **retain a high quality contracting base**.
15. Regarding **general monitoring and audit requirements** the Trust will:
  - Before July 2028 consider independent auditing of the management processes and methodologies used.
  - Work with DOC and ES to consider the merits of developing a practical vegetation monitoring programme (monitoring effects and responses) in moving from a progressive control to a zero density regime.
  - Ensure prior and newly established photopoints are revisited on a 3-yearly basis, and updated accordingly, to be able to demonstrate operational effectiveness.
  - Encourage exemptions to be sought for EPA/MPI water setback rules, on a site by site basis, where it is not deemed feasible or uneconomic to employ alternative control measures.
16. That DOC and the Project Management Contractor work together to **better understand the ecological values** in the Mid Dome project area, map specific areas and ground truth where specific interventions are required, to increase the overall efficiencies of operations and understand the ecological damage to be avoided.

## Internal matters

17. Regarding boundary alignments, that MPI is asked (via Wakatipu Wilding Conifer Control Group connections) to **realign the northern boundary** between Otago and Southland regions and the MU control work occurring here, to ensure there are no control gaps (to be addressed through the Southland Wilding Conifer Strategy).
18. **Review the Deed of Charitable Trust**, by December 2024, to ensure it remains valid and effective for future management and operational requirements.



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## 9 GLOSSARY

**Agencies:** Means central or local government bodies, Crown entities or any other government organisation.

**Authorised person:** A person that has been appointed as an authorised person by Environment Southland under section 103 of the Biosecurity Act.

**Biodiversity:** Means the variability among living organisms from all habitats, including terrestrial, marine and other aquatic ecosystems and the ecological systems of which they are part of. This includes diversity within species, between species and of ecosystems.

**Biosecurity:** refers to protection within the country or a region from the risks posed by organisms to environmental, social, cultural and economic wellbeing, through exclusion, eradication and control.

**Destroy:** For the purposes of the rules in the Southland RPMP, means to pull, breakdown, demolish, make useless, kill, cause to cease to exist. In relation to wilding conifers destroy also refers to the permanent preclusion of the plant's ability to set viable seed.

**Eliminate:** For the purposes of Plan Rule 14 (wilding conifers) in the Southland RPMP, means the permanent preclusion of the plant's ability to bear cones.

**Forestry woodlot:** Means an area deliberately planted comprising of exotic tree species, with the intent of being harvested at some point. Seed spread from these woodlot areas may contribute to wilding conifer establishment in some circumstances – see also 'pest agent' and 'wilding conifer' definitions.

**HSWA:** means the Health and Safety at Work Act 2015. And HSWA Legislation means the Health and Safety at Work Act 2015 and includes all regulations made under that Act and any other health and safety-related legislation relevant to the national wilding conifer control programme.

**Maintenance:** refers to ongoing control required for wilding conifers once initial or first up control work has been carried out. Maintenance work may involve two or more phases of further control, depending on the amount of regrowth or spread that has occurred following initial control.

**Management Unit or MU:** Means an area designated by MPI as a management unit as set out in the Wilding Conifer Information System, and has a fixed name, number and boundary area.

**Occupier:** Means under the Biosecurity Act - a) In relation to any place physically occupied by any person, means that person; and b) in relation to any other place, means the owner of the place; and c) in relation to any place, includes any agent, employee, or other person, acting or apparently acting in the general management or control of the place.

**Operational Area or OA:** Means part of a Management Unit designated as an operational area by MPI, as set out in Wilding Conifer Information System, and has a fixed name, number and boundary (area).

**Pest:** Has the same meaning as in the Biosecurity Act 1993: “an organism specified as a pest in a pest management plan.” Hence ‘pest plants’ (e.g. wilding conifers) are named and declared pests in the Southland RPMP.

**Pest agent:** Has the same meaning as in the Biosecurity Act 1993: “in relation to any pest, means any organism capable of: a. helping the pest replicate, spread, or survive; or b. interfering with the management of the pest”

**Public Conservation land:** Means any Crown managed land primarily managed by the Department of Conservation for conservation, reserve management and biodiversity purposes.

**Regional pest management plan:** A regional plan for the eradication or effective management of a particular pest or pests made under part 5 of the Biosecurity Act 1993.

**Road:** Means all formed roads (including road verges) from the centre of the road to an abutting property boundary and includes all bridges, culverts and fords forming part of any road, but does not include unformed (paper) roads.

**Rule:** A rule included in the Southland RPMP, made in accordance with section 73 of the Biosecurity Act 1993. A breach of a rule constitutes an offence under the Biosecurity Act 1993.

**Sustained control:** Under the Southland RPMP, to provide for the ongoing control of a pest to reduce its impacts on values and its spread to other properties.

**Wilding conifer:** Wilding conifers are any introduced conifer tree, including (but not limited to) any of the species listed in Table 3 of the Southland RPMP, established by natural means, unless it is located within a plantation forest, and does not create any greater risk of wilding conifer spread to adjacent or nearby land than the plantation forest that it is a part of. They are:

- Bishops pine *Pinus muricata*
- Contorta (lodgepole) pine *Pinus contorta*
- Corsican pine *Pinus nigra*
- Douglas fir *Pseudotsuga menziesii*
- Dwarf mountain pine *Pinus mugo*
- European larch *Larix decidua*
- Maritime pine *Pinus pinaster*
- Mountain pine *Pinus uncinata*
- Ponderosa pine *Pinus ponderosa*
- Radiata pine *Pinus radiata*
- Scots pine *Pinus sylvestris*

**WCIS:** means the ‘wilding conifer information system’ provided by MPI from time to time.

**Zero density:** (usually) means no known individuals of the target pest species are present in the area of concern, however reinfestation may always be possible. For this Strategy ‘zero density’ is amended to denote that wilding conifers may be present on a property or in an area as long as the trees are not of coning age (hence no coning trees are to be present).

## 10 ACKNOWLEDGEMENTS

The following people and organisations are acknowledged for providing valuable information and assistance in compiling this Strategy:

### Mid Dome Wilding Trees Charitable Trust

- Ali Ballantine - Chair
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- Geoffrey Young
- Michael Skerrett
- Glenys Dickson
- Tapuwa Marapara
- John Whitehead

### Boffa Miskell Ltd

- Brent Rohloff
- Robin Pieper
- Marcus Girvan
- Bec Simpson
- Brian McAuslan

### Environment Southland

- Jolie Hazley
- Ali Mead
- Leah Smith

### Crown agencies

- Sarah Fish - MPI
- John McCarroll - DOC
- Kevin Gallagher and Ini-Isabee Gunn - LINZ

### Others

- Rob Phillips – former CEO, Environment Southland

## APPENDIX 1: Trustee questionnaire feedback summary

### Overall - work to date:

- As a long-term project, the (recent) increased MPI funding has made a huge difference.
- Good relationships with the key funders have been very beneficial.
- Good mix of trustees and their commitment – ‘never give up’ motto.
- Previously, when Trust had John Aspinall and Alan Mark it was easier to get landowner and High Country Federated Farmers buy in.
- Project Manager does exceptionally well – complex programme with many people involved requiring a lot of coordination.
- Great progress in past 3 years, but politically it will likely fail.
- Does the Trust need to exist? Could the project be managed by land holders and ES?
- Iwi representation is lacking and difficult to retain continuity of their young people.
- General feeling was that the Trust is fit for purpose but a review of Deed is in order.

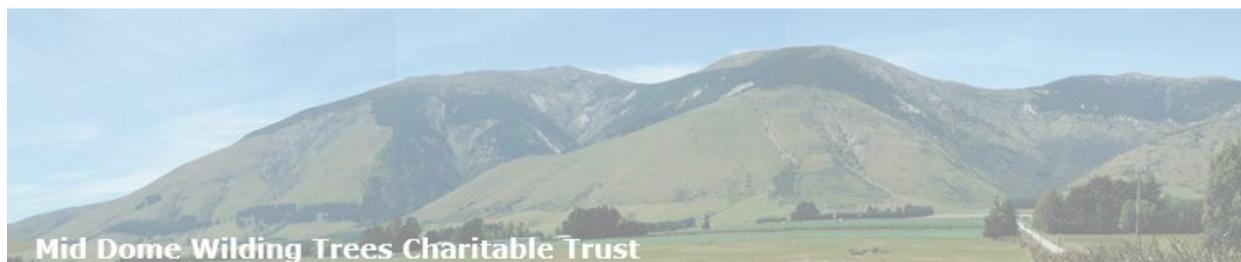
### Key issues / constraints:

- Previous strategy is/was probably too vague and with no clear direction.
- Fundamental flaw initially in not getting landowners to put skin in the game. Cultural shift in farming attitudes with younger generation not really engaged in wilding issue.
- More engagement with the landowners is required to keep them informed.
- Constraints include - lack of funding, lack of effective tools initially, cost of chemicals, MPI unwillingness to operationalise effectiveness, DOC and LINZ funding reductions and difficult access.
- The ES RPMP rules are inadequate (in terms of landowner obligations). Southland District Council also has inadequate (District Plan) rules.
- How to deal with incursions of Douglas fir which were not in the original programme.
- Previously, awareness was in place but carbon forestry is now ‘running riot’ and MPI needs to address the anomalies and legislation gaps (carbon forestry is ‘muddying’ the objectives).

### Future thinking:

- A (clearer) strategy on handing the control of wilding pines over to land owners to continue the work of controlling them on their properties is needed – i.e. a fool proof handover plan to land holders.
- Farmers need to be more proactive to keep their properties viable.
- Pine trees need to be planted in the right place. Total farms covered in pines is not the answer to climate change. Each farmer should plant a percentage of their farm in trees that don’t spread.
- Scope for ES to do more. Weak spot in mismatch in central govt policy settings.
- Landowners need to take (their) responsibility more seriously, plus more \$ input is necessary.
- (More) government funding is required to keep the management of wilding pines under control.

## APPENDIX 2: Transitional control letter from the Trust - 2009



18 May 2009

Dear «First\_Name»

### ***Wilding Tree Control***

The Mid Dome Wilding Trees Charitable Trust has been advised by its Project Manager that control on several properties on the eastern side of the wilding tree programme area has effectively been completed. Here all of the visible wilding pine trees have been removed from this land as the result of two extensive helicopter/skid hopping sweeps done over the last five years. Your property has been identified as being in this category.

The Trust is now in a position where it would like to hand over responsibility for wilding trees on this land to the respective property owners. This means they would have to meet the rules for *Pinus contorta* and *Pinus mugo* set by Environment Southland in its Regional Pest Management Strategy.

The Trust realises that adjacent landowners were in no way responsible for the original wilding tree infestations arising from Mid Dome. However after investing a considerable amount of effort in removing all of the visible trees from the fringe areas the Trust now needs to focus its resources on the core areas where there are still major infestations.

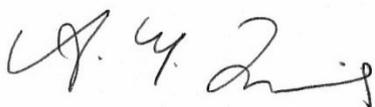
The Trust feels that with the current state of wilding trees on this cleared land that individual landowners should now be able to deal with any isolated trees that may appear from previously controlled sites or from new seed fall. Any surveillance and spot control required could be done as a part of normal farm management activities.

Environment Southland would monitor compliance with the Regional Pest Management Strategy rules on the land concerned. We also expect that Environment Southland staff would work closely with the landowners and provide support and assistance with the management of wilding trees.

If an exceptional situation arose where wilding tree management needs were beyond the landowners' means then the Trust could undertake to provide direct assistance. This could be as the result of extensive regrowth from a previously controlled site or clearly identified spread from uncontrolled areas.

The Trust is holding its next meeting in Lumsden on Tuesday 23 June 2009. This issue will be discussed there and you are welcome to attend to present your views and/or to obtain more information about our proposal to hand over wilding tree control on cleared areas to property owners.

Yours sincerely



Ali Timms  
**Chair**

## APPENDIX 3: Southland RPMP objective and rules for wilding conifers

Objective, Principal Measures and Rules	
<b>Plan Objective 8</b>	<b>Principal measures to be used</b>
<p>Over the duration of the Plan, progressively contain and reduce the geographic extent of:</p> <ul style="list-style-type: none"> <li>(i) contorta and mountain pine within the Southland region; and</li> <li>(ii) wilding conifers<sup>6</sup> within the Southland Wilding Conifer Management Area (see Map 4 - Appendix 1)</li> </ul> <p>to minimise adverse effects on economic well-being and the environment.</p> <p>Within the 660,000 hectare SWCHRA, 345,000 hectares of land will be cleared of wilding conifers within 10 years of the commencement of the Plan.</p>	<p>Appropriate measures drawn from the suite of activities listed under <b>requirement to act, council inspection, advocacy and education</b> described in Section 5.3 of the SRPMP may be used to by Environment Southland to achieve Objective 8.</p> <p>Objective 8(ii) may also be achieved under The National Wilding Conifer Control Programme – a collaborative funding model for wilding conifer control. Parties to this programme could include the Ministry of Primary Industries, Department of Conservation, Land Information New Zealand, Environment Southland and owners and/or occupiers.</p>
<b>Plan Rule 14</b>	<b>Explanation of Rule</b>
<p>Owners and/or occupiers shall, upon receipt of a written direction from an Authorised Person, eliminate all contorta and mountain pine plants from the land they occupy.</p> <p>For the purpose of this rule, eliminate means the permanent preclusion of the plant's ability to bear cones.</p> <p>A breach of this rule creates an offence under Section 154N (19) of the Act.</p>	<p>The reason for this rule is to maintain land that is clear or being cleared of contorta and mountain pine plants from being re-infested.</p> <p>An owner and/or occupier within the Mid Dome Wilding Tree Programme Area (MDWTPA) shown on (see Map 6 -Appendix 1) are exempt from this rule until such time as the Programme Manager for the MDWTPA has removed all seeding trees from the owner and/or occupier's land.</p>
<b>Plan Rule 15</b>	<b>Explanation of Rule</b>
<p>Within the Southland Wilding Conifer Management Area (Map 4 - Appendix 1), owners and/or occupiers shall destroy all wilding conifers on land that they occupy prior to cone bearing, if:</p> <ul style="list-style-type: none"> <li>(a) the wilding conifers are located on land which has had control operations carried out to destroy wilding conifers from the commencement of the Plan; and</li> <li>(b) the control operations were publicly funded (either in full or in part).</li> </ul>	<p>The reason for this rule is to ensure that new infestations of wilding conifers are prevented from re-establishing at sites where wilding have previously been destroyed through publicly funded control operations.</p>

<sup>6</sup> Wilding conifers are any introduced conifer tree, including (but not limited to) any of the species listed in Table 3 established by natural means, unless it is located within a plantation forest, and does not create any greater risk of wilding conifer spread to adjacent or nearby land than the plantation forest that it is a part of.

<b>Objective, Principal Measures and Rules</b>	
A breach of this Rule creates an offence under Section 154N (19) of the Act.	
<b>Plan Rule 16</b>	<b>Explanation of Rule</b>
<p><b>Note:</b> <i>This is designated a Good Neighbour Rule.</i></p> <p>Within the Southland Wilding Conifer Management Area (Map 4 - Appendix 1) owners and/or occupiers shall destroy all wilding conifers present on land they occupy within 200 m of an adjoining property boundary, prior to cone bearing, where:</p> <p>(a) the owner and/or occupier of the adjoining property has destroyed wilding conifers on their land since 14 June 2019: and/or</p> <p>(b) the owner and/or occupier of the adjoining land is taking reasonable measures to manage wilding conifers on their land, within 200 m of the boundary since 14 June 2019.</p> <p>A breach of this Rule creates an offence under Section 154N (19) of the Act.</p> <p>Reasonable measures to manage may include:</p> <ul style="list-style-type: none"> <li>• ongoing control operations have been carried out to destroy all cone bearing trees;</li> <li>• regular management and control of young (non-cone bearing) trees such that no tree reaches cone bearing age;</li> <li>• regular monitoring adequate for detecting the pest, and the intent and ability to control the pest if detected.</li> </ul>	<p>Over the duration of the Plan, to ensure that the spread of wilding conifers does not cause unreasonable costs to the owners and/or occupiers of adjoining properties, where wilding conifers, contorta, Corsican, Scots, mountain and dwarf mountain pines and/or larch have previously been destroyed through control operations on the adjoining property and the adjoining owner and/or occupier is undertaking active wilding conifer management.</p> <p>Any action pertaining to non-compliance will only be initiated upon a complaint in writing from the adjoining affected owner and/or occupier.</p> <p>The National Policy Direction requires that before a rule can be identified as a good neighbour rule, the Council must be satisfied that the adjacent owner and/or occupier is taking reasonable measures to manage the pest or its impacts.</p>
<b>Plan Rule 17</b>	<b>Explanation of Rule</b>
<p><b>Note:</b> <i>This is a pest agent rule.</i></p> <p>Within the Southland Wilding Control Management Area (Map 4 - Appendix 1) owners and/or occupiers shall, on receipt of written direction from an Authorised Person, destroy any pest agent conifer that is present on land they occupy within 200 m of an adjoining property boundary,</p>	<p>Introduced conifer trees that are capable of helping the spread of wilding conifers present a risk for wilding conifer management.</p> <p>This rule is to ensure that over the duration of the Plan, new infestations, or re-infestation of wilding conifers are prevented at sites where wilding conifers, and/or other planted conifer</p>

Objective, Principal Measures and Rules	
<p>if:</p> <p>(a) wilding conifers and/or other planted conifer species have been destroyed through control operations on the adjoining property, within 200 m of the boundary, since the 14 June 2019; and</p> <p>(b) the control operations were publicly funded (either in full or in part).</p> <p>A breach of this Rule creates an offence under Section 154N(19) of the Act.</p> <p><b>Pest agent conifer</b> means any introduced conifer species that is capable of helping the spread of wilding conifers and is not otherwise specified as a pest in the SRPMP and is not located within a plantation forest.</p> <p><b>Plantation forest</b> means a forest deliberately established for commercial purposes, being at least one hectare of continuous forest cover of forest species that has been planted and has or will be harvested or replanted.</p> <p><b>Forest species</b> means a tree species capable of reaching at least 5 m in height at maturity where it is located.</p>	<p>species have previously been destroyed through publicly funded control operations.</p>
<p><b>Advice Notes</b></p> <ol style="list-style-type: none"> <li>1. Sections 52 and 53 of the Biosecurity Act 1993, which prevent the communication, release, spread, sale and propagation of pests, must be complied with. These sections should be referred to in full in the Act.</li> <li>2. A person may make an application to the Council for an exemption from the rules under Section 78 of the Biosecurity Act 1993. This section should be referred to in full in the Act.</li> </ol>	

Note: The Southland Wilding Conifer Management Area includes Mid Dome and areas west of, extending to Lake Te Anau, Monowai and Nightcaps (in the south) and the Mavora lakes in the north). The Mid Dome Wilding Tree Programme area covers the three management areas outlined in this Strategy.

The table below lists those conifers as named pests in the RPMP.

Common name	Scientific name
Bishops pine	<i>Pinus muricata</i>
Contorta (lodgepole) pine*	<i>Pinus contorta</i>
Corsican pine	<i>Pinus nigra</i>
Douglas fir	<i>Pseudotsuga menziesii</i>
Dwarf mountain pine	<i>Pinus mugo</i>
European larch	<i>Larix decidua</i>
Maritime pine	<i>Pinus pinaster</i>
Mountain pine	<i>Pinus uncinata</i>
Ponderosa pine	<i>Pinus ponderosa</i>
Radiata pine	<i>Pinus radiata</i>
Scots pine	<i>Pinus sylvestris</i>

\* Unwanted organisms (as declared by a chief technical officer)