

Before the national Programme, wilding conifer infestations were increasing by five percent each year.





One year's delay, and infestations can cost 30 percent more to control: Clarence River, Marlborough

CONTENTS

Phase I highlights	02
A planned approach (2015-2030)	04
Programme governance and management	05
New project achievements	06
Programme science	09
Phase I control summary	10
Financial Report 2017/18	20

PHASE I HIGHLIGHTS

In preventing the spread of wilding conifers, we must act now - as delays in treatment will quickly put the costs beyond our reach. We are at a tipping point.

Phase I of the National Wilding Conifer Control Programme has shown that we can get on top of our No. 1 plant pest - through a combination of improved technologies, focussed and coordinated efforts, and added funding. Our aim in Phase I was to tackle priority areas of infestation, and sort out systems and processes before potentially scaling the Programme up.

Having had a successful 2016/17 year, the Programme accelerated Phase I treatments in 2017/18 - so now 85 percent of these are complete. The remaining Phase I treatments - around 150,000 hectares - will be tackled in the coming (2018/19) year.

Control work to date has treated over 500,000 hectares of scattered infestation (around a third of our estimated national total), and over 40,000 hectares of dense and intermediate infestation (about 20 percent of the national total). We've also searched over a million hectares for any remote, outlier trees.

By the end of this - Phase I - the first round of treatment will be complete or nearly so in six of the Programme's Management Units (MUs), while in another three we'll have stopped wilding conifer spread and removed most problem seed sources. In ten MUs, we'll have pushed spread back to some intermediate and dense infestations which are well beyond the scope of Phase I resourcing.

Planning is now underway for Phase II, which will involve follow-up treatments of many areas treated in Phase I, as well as removing some remaining, denser infestations – which will be considerably more expensive to treat. We are also assessing priorities and management options for infestations in areas outside of what was covered in Phase I.

This is just the first round of treatments, and success is a long-term game. To maintain these hard-won gains and stay on top of this pest we need ongoing partnership with local communities and authorities and for everyone involved to stay committed to our aims.

Roger Smith

Programme Chair, and head of Biosecurity New Zealand



In three years, the Programme has treated over half a million hectares of wilding conifers and searched the surrounding land for remote, outlier trees.

Most of these infestations were still in their early stages, so were highly cost-effective to control.



A PLANNED APPROACH (2015-2030)

Despite significant, ongoing control by private land holders, community groups, and central and local government agencies, wilding conifers have been spreading across New Zealand by more than five percent (90,000 hectares) each year. At that rate it was predicted they'd cover 20 percent of our land by 2030.







CONTROL COSTS CAN ESCALATE RAPIDLY IF AN INFESTATION IS LEFT UNCHECKED.

Developing a Programme

In response, the NZ Wilding Conifer Management Strategy 2015-2030 was developed. The Strategy is implemented through the National Wilding Conifer Control Programme, which brings extra funding, coordination, and collaboration to wilding conifer control across New Zealand.

An additional \$16 million was contributed by the Crown towards Phase I of this Programme.

Phase I

Phase I (2016-2019) has concentrated on areas with lighter infestations of the most spread-prone species, where further spread could be prevented (following the adage 'a stitch in time saves nine'). The 19 Management Units selected for control in Phase I contain about half of New Zealand's wilding conifer affected land.

Control work to date includes \$12.4 million of Crown Programme funds, along with \$5.8m in cash and in-kind, local contributions from Crown agencies, councils, land holders and community trusts. A further \$4.6m of Programme funds and partner contributions is budgeted for 2018/19 control work.

Areas treated in Phase I will initially require follow-up every 3-4 years, although treatment costs become successively cheaper, as remaining seeds in the soil are exhausted. This means that ultimately, the Programme can (in most cases) hand responsibility for keeping the land wilding-free back to the land holder and wider community.

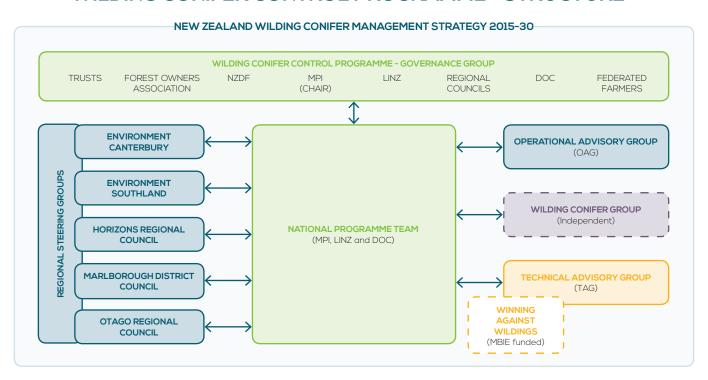
Phase II

Planning for Phase II of the Programme is currently underway. Within the 19 Management Units already worked in, Phase II will involve follow-up treatments of much of what was treated in Phase I, removing seedlings that have germinated since then, as well as removing some remaining denser infestations. These will be considerably more expensive to treat, which will require a significant Programme ramp-up.

Phase II planning also includes assessing priorities and management options for infestations in areas outside of what was covered in Phase I.

PROGRAMME GOVERNANCE AND MANAGEMENT

WILDING CONIFER CONTROL PROGRAMME - STRUCTURE



National Wilding Conifer Control Programme Phase I funding has been targeted at nationallyagreed priorities. Programme funds and cofunding contributions, and contracts, have been managed by the relevant regional council and local partners, while the Programme has brought a nationally coordinated approach to this work. This collaboration has been instrumental to our success.

Control funding is allocated to Fund Holders, based on nationally-agreed priorities, who in turn fund control work across defined Management Units (MUs). The MUs have one or more Project managers, who oversee a contracting workforce of ground or aerial operations.

In MUs where wilding control is funded by the Programme, all land holders are included.





Collaboration between local and Crown partners has been instrumental in the Programme's success.

NEW PROJECT ACHIEVEMENTS



REVISED ONLINE PRESENCE

A refreshed website has been developed as a 'one-stop-shop' for control and other information about wilding conifers. It is based largely on content from the New Zealand Wilding Conifer Management Group (NZWCMG) website, and uses that original site's URL - wildingconifers.org.nz.

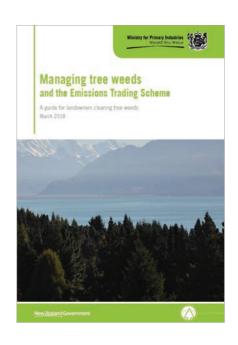
The new site includes: guidance for land holders, updates from the Programme, science research, control good practice guides, and links to the Wilding Conifer Information System.

NEW WILDING CONIFER GROUP

The Programme's stakeholder advisory group and the NZWCMG committee have worked together to merge into a single, independent stakeholder-led wilding conifer group - the Wilding Conifer Group.

An Interim Committee has been formed to guide the Group's establishment.





GUIDANCE FOR LANDOWNERS

Some simple guidance has been developed to help land owners understand when they can clear tree weeds (including wilding conifers) without incurring a financial liability under the Emission Trading Scheme (ETS). This guidance is on the Ministry for Primary Industries' website (ETS section).

WILDING CONIFER INFORMATION SYSTEM

Fund managers have begun uploading their control work into the Wilding Conifers Information System. This gives us a far more accurate picture of infestations, and the control work undertaken there. The System also lets us measure and report on the Programme's progress in controlling wilding conifers.





SIGNAGE

Layby area signs have been installed near some control areas where dead wilding conifers are publicly visible. More signs will be installed to accompany control work in the coming year.

A rural perspective

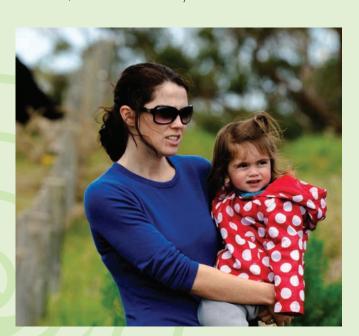
The 2017 Survey of Rural Decision
Makers, conducted by Manaaki Whenua
– Landcare Research, asked rural land
owners if they knew of wilding conifers in
their districts, and if so, of their attitudes
toward them. This survey follows on from
a similar one conducted in 2015.

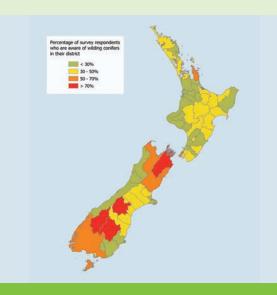
Of the 4,000 respondents in 2017, 35% say wilding conifers are present in their districts, compared to 25% answering the 2015 survey – indicating either significant spread of wilding conifers or greater awareness among the rural population. In 2015, 23% of respondents who noted wilding conifers in their districts considered them beneficial; by 2017, this had dropped to 7%.

In a supplemental survey of 280 of these land owners who'd noticed wilding conifers in their districts, 44% say these are growing on their own and/or neighbours' land.

The number of properties invaded by wilding conifers has increased exponentially since the late 1980s, and respondents report that the main seed sources are commercial forests, farm shelterbelts, and amenity plantings on their own and neighbours' land.

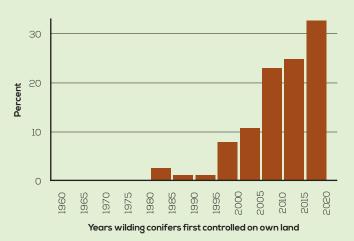
Of these people, half find the infestations "extremely easy" or "easy" to control, while 17% find them "difficult", and 4% "extremely difficult" to control.





"I control wilding pines for aesthetic reasons and to stop spread to neighbouring properties and into the national park."

Verbatim comment, survey respondent



Years wilding conifers appeared on own land

PROGRAMME SCIENCE

Around \$15 million in wilding conifer research is underway to support the national Programme. Most is funded through the Ministry of Business, Innovation and Employment, and a smaller amount through the Ministry for Primary Industries' Sustainable Farming Fund.

The research includes:

- Producing sterile Douglas fir (to negate future spread from these commercial plantings)
- New control tools (to reduce treatment costs)
- Remote detection of wilding conifers (improving the efficiency of control)
- Better understanding the environmental impacts of wilding conifer invasion and control treatments.
- Improved models for wilding spread (to reduce spread-risk in commercial plantings)

The following pieces of this research have been delivered in 2017/18.

Rural Decision-makers' survey - Project Lead Pike Brown, Manaaki Whenua - Landcare Research

In a follow-up to the Manaaki Whenua - Landcare Research 2017 Survey of Rural Decision Makers, land owners were asked for their views on wilding conifers and their control of them. The survey also asked their opinions about current and potential interventions to control spread.

Understanding invasion impacts - Project Lead Duane Peltzer, Manaaki Whenua - Landcare Research

This research strand aims to help us better understand the consequences of invasion by wildings, and the ecological and ecosystem consequences of treating these invasions.

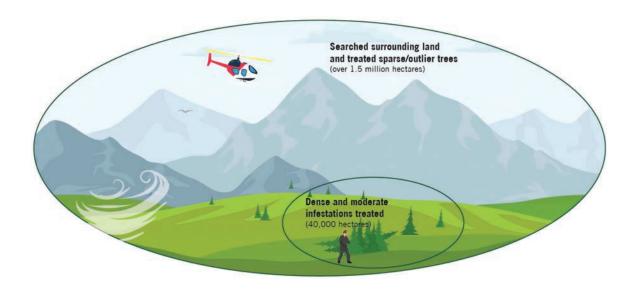
Towards this, a number of permanent field plots have been set up, and collaborations are underway with wilding conifer researchers in other countries. One recent finding is that lodgepole pine invasion causes greater declines in plant diversity in the southern hemisphere than in the north.

ABBA carrier oil report - Project Lead Carol Rolando, Scion

Aerial Basal Bark Application (ABBA) of herbicide can be the most cost-effective way to control medium-sized trees that are spread widely across the high country. This technique involves using a registered herbicide in conjunction with a carrier oil.

Scion Research reviewed the oil carriers used in ABBA, from an environmental and human health perspective. This review recommends vegetable oils (including biodiesels) over mineral oils as carriers – as they're safer for humans and the environment.

PHASEI CONTROL



Our extensive operations uncovered new infestations in some areas – so we couldn't complete their full treatments.

Phase I of the Programme involves 19 Management Units (MUs) which contain priority infestations. Within these, we have treated a third of all dense infestations and over 40 percent of the intermediate ones. We've also treated over three quarters of all their sparse and outlier infestations, and checked hundreds of thousands of hectares surrounding these - to ensure no trees had been missed.

Not surprisingly, the extensiveness of the Programme's search and control operations brought more infestations to light than we knew were there. So, while we have greatly exceeded the Programme area of control, in some cases we haven't yet finished the first round of treatment.

Ongoing, follow-up treatments will keep these areas wilding-free, with these costs progressively reducing as seed sources are removed and seeds in the soil die.

Within Phase I MUs, some infestations are so advanced that containment is our focus, while eradication is still feasible in others.







Central North Island



KAIMANAWA WEST

Programme funds have contributed to the later stages of cleaning up a legacy from old commercial plantings that spread wildings across surrounding lands in western Kaimanawa Management Unit (MU). This helps protect the Desert Road's landscape and ecosystems (including Tongariro National Park), as well as the viability of NZ Defence Force lands for use as a training area.

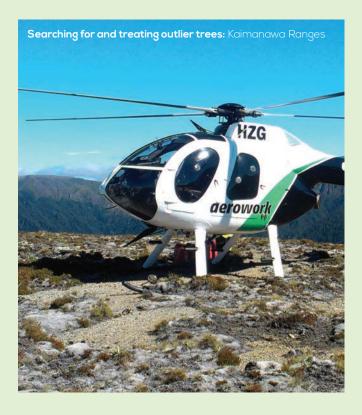
KAIMANAWA EAST

In eastern Kaimanawa MU, the Programme has helped contain active spread from old erosion-control plantings in the Kaweka Ranges. To contain and control these to a manageable level will require significant future funding.

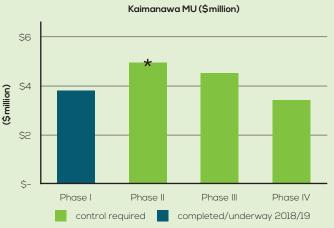
- Spread-prone trees were planted at Karioi Forest from the 1930s, as well as being used for farm shelterbelts, and amenity plantings in the Waiouru area. Also, around the middle of last century spread-prone trees were planted to control erosion in the Kaweka Ranges.
- Problem species include Pinus contorta, Scots pine, and Corsican pine.
- Since the 1960s, volunteer groups, government, and private landowners have put in ongoing efforts to control tree weeds across the MU.
- In Western Kaimanawa, the worst infestations were addressed by removing wilding forests encroaching on the Desert Road (beginning in the 1970s and in earnest from the late 1980s) and by logging and mopping up seed sources in Karioi Forest. In the early 1990s, controlled burning on NZ Defence Force land removed hundreds more hectares of wilding forest. Since then, NZDF has made widespread, intensive

- efforts to reduce wilding density to low levels and keep it there.
- Without these ongoing efforts, the Desert Road and surrounds would today be covered in tall wilding pine forest.

During Phase I, \$1.5 million of Programme funds was spent on the Kaimanawa MU (in addition to \$2.3 million in local contributions).



Projected control (out to 2032) needed to secure our gains to date, and build on these.



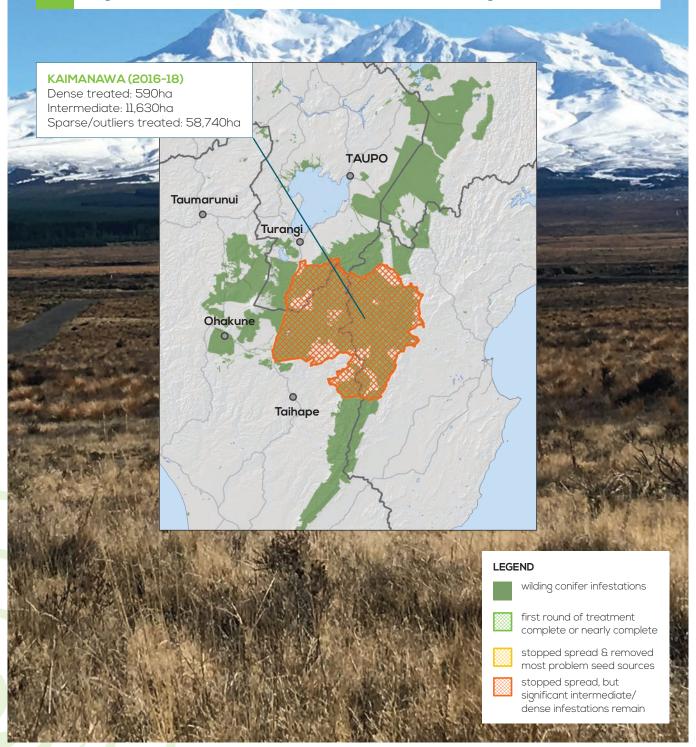
* Involves tackling more expensive (dense and/or remote) infestation.

CENTRAL NORTH ISLAND REGION

We've pushed back wilding conifer spread across vulnerable and unique land in the upper Rangitikei, Ngaruroro, and Tutaekuri River catchments. This involved treating sparse and outlier trees on land administered by NZ Defence Force and Department of Conservation, as well as Māori trust land, and private farmland. But there remain many dense infestations of coning trees, particularly in Hawkes Bay catchments.

"The Programme has further cemented our collective operations in this region. This includes expanding the combined operational planning and delivery of multiple stakeholders, and improving long-term protection, through more aligned regional pest plans."

Craig Davey, Natural Resources Sector & Partnerships Co-ordinator, Horizons Regional Council.

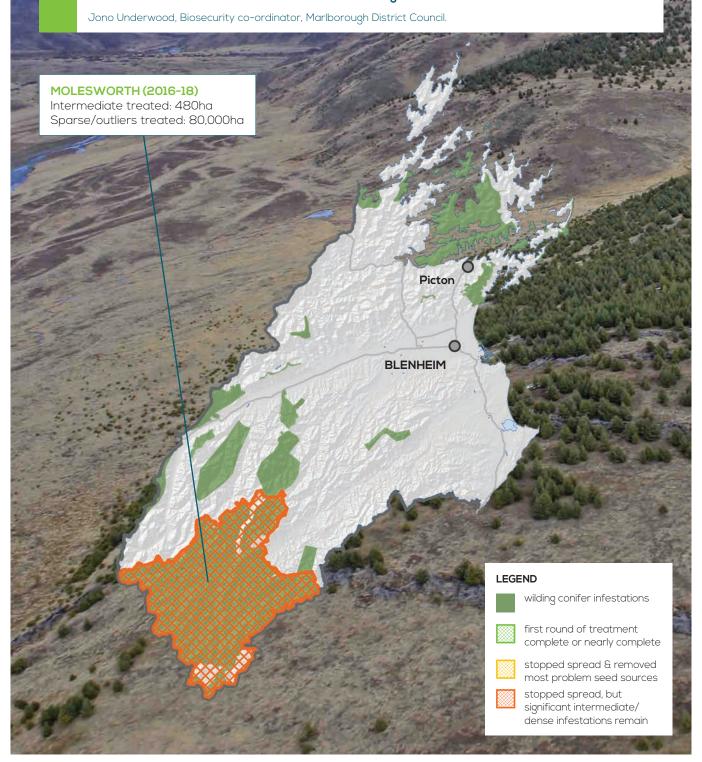


MARLBOROUGH REGION

Programme efforts have focussed on removing sparse and outlier wilding conifers pushing the spread back to heavily infested areas in and around Tarndale. Removing these is the long-term goal.

The big terrain and isolation of Molesworth Station's farmland and conservation areas makes wilding conifer control logistically challenging.

"Before the Programme became involved, the writing was on the wall for Molesworth but the extra investment has given us a chance to get on top of infestations here. It's given those involved a large amount of confidence that these infestations can be reigned in."

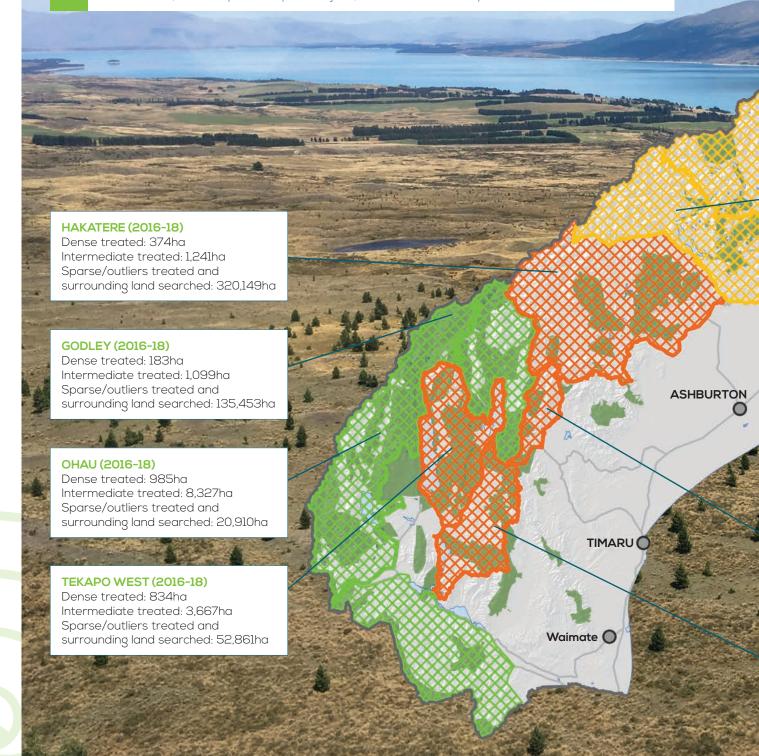


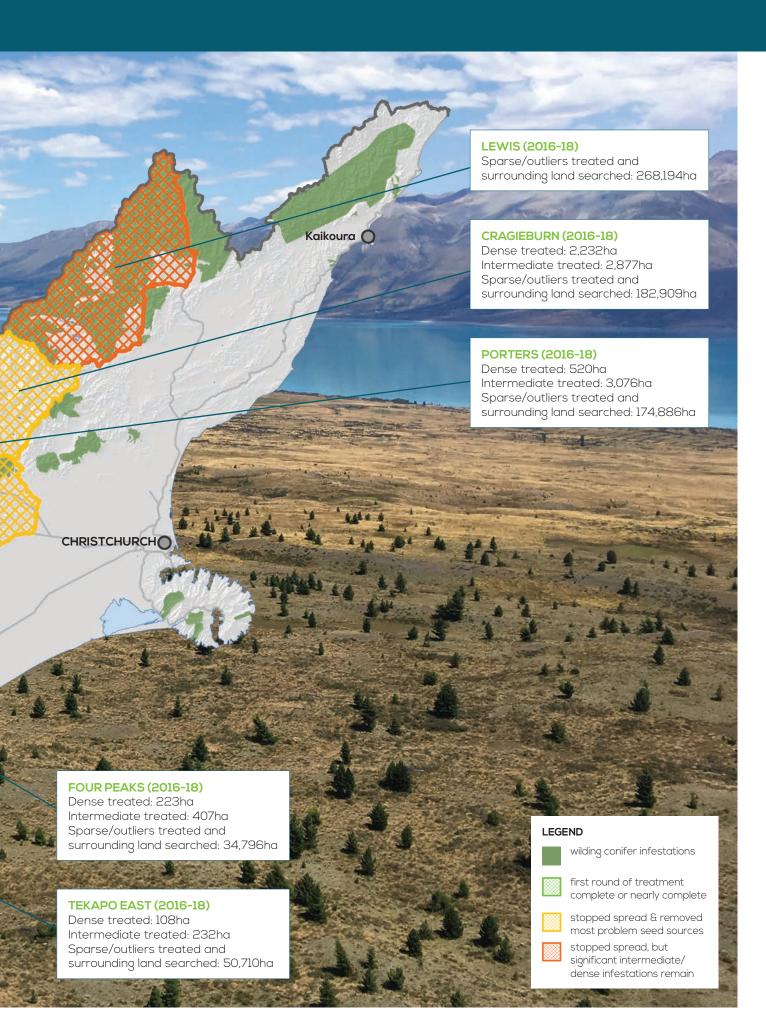
CANTERBURY REGION

We've been very effective in controlling sparse and outlier infestations of wilding conifers and preventing their further spread in Canterbury. Much of this spread has been in remote hill country, away from easy access. However there remain many dense areas of trees (including coning trees) that still need to be addressed.

"I think the Programme has helped firm up a lot of relationships, as people have come together who share a common purpose – everyone agrees the wilding pines have got to go – and that's right across the board"

Steven Palmer, Biosecurity Advisor Special Projects, Environment Canterbury





Waimakariri Headwaters



Despite a previous combined spend of around \$300,000 a year, the Crown and local stakeholders struggled to contain wilding spread from old erosion-control plantings in the Waimakariri River headwaters.

Around \$2 million in Programme funds, added to around \$800,000 in local contributions, allowed a concentrated effort, which got on top of things. After treatment follow-ups, the costs of control will plummet and bring significant long-term savings to locals and Crown agencies.

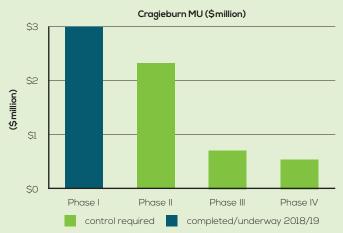
This wilding conifer control protects recreational and biodiversity values and productive farmland east of Arthur's Pass. These areas have high local and international visitor use, and are on the edge of Arthur's Pass National Park.

- Erosion control trials from the 1950s-80s have since spread wilding conifers infestations across the surrounding land. This includes significant productive farmland, and areas with high biodiversity, recreation and landscape values.
- Problem species include Pinus contorta, mountain pine, and Douglas fir.
- Ongoing work has been undertaken by the Waimakariri Ecological and Landscape Restoration Alliance (WELRA), residents and land holders (including Flock Hill Holdings), ski field operators, DOC, LINZ, and Environment Canterbury.
- In 2015 a 330 ha wildfire took out some infestations.
- From 2016-18, \$2 million of Programme funding was added to \$800 thousand of ECan, DOC, WELRA community group, and land occupier contributions, and we turned the situation around.
- Helicopter logging of a large, mature, and spread-prone Forestry Service plantation is due to commence in the coming year.
- Farmers have regained the use of previously grazed land lost to wilding conifers, and surrounding conservation areas such as Arthur's Pass National Park and the Korowai/Torlesse

- Tussocklands Park have been protected from invasion.
- This work has shown that with appropriate levels of funding up front, significant wilding conifer infestations can be rapidly and efficiently removed, providing significant savings to all parties in the medium to long term.
- Further work is required to remove some remaining high spread risk amenity plantings and smaller seedlings, including two or three more rounds of follow-up treatment.



Projected control (out to 2032) needed to secure our gains to date, and build on these..



Central Otago



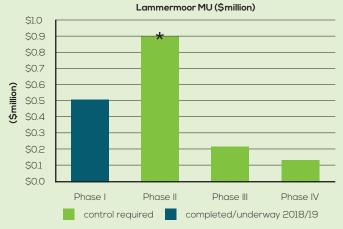
The Programme funded a concerted effort to get on top of the relatively early stages of infestation in Lammermoor Management Unit (MU).

Through this, we've protected an extensive area that's highly vulnerable to invasion and contains significant conservation values, and highly sensitive and important water catchments (including that of Dunedin City), as well as large areas of vulnerable farmland.

- Wilding infestations in Lammermoor MU come from shelter belt plantings, plantation forestry and amenity plantings around farms.
- Problem species include Pinus contorta, Douglas fir, and Pinus radiata.
- Infestations were still quite manageable in 2015, and with Programme help, The Central Otago Wilding Conifer Control Group's five-year control strategy has been achieved within three years.
- Around \$500,000 was spent on this work, just under half of which was Programme contributions.

 Further work includes engaging with land holders to replace shelter belts with less spreadprone species, and encourage commercial forest owners to contribute more to the cost of controlling wilding spread and ensure future forests are not planted in spread-prone species.

Projected control (out to 2032) needed to secure our gains to date, and build on these..



 \bigstar Involves tackling more expensive (dense and/or remote) infestation.



OTAGO REGION

In Central Otago, we've largely controlled all the sparse and outlier wilding conifers – most of which have come from planted stands and shelterbelts. Around Wakatipu, we've made significant gains, but there remain many large, problem seed sources outside our current controls that are a source of wilding spread - particularly around the wider Wakatipu basin.

"With Programme funding we've accelerated the work being done by local wilding conifer control groups and their programme managers and contractors, with massive results – which we're just now starting to see. And we've seen an extremely high buy-in from landowners contributing towards the Programme. It's hugely satisfying."

Richard Lord, Team Leader Biosecurity Compliance, Otago Regional Council.



SOUTHLAND REGION

We've been containing the spread of wilding conifers at Mid Dome, and begun to remove the core, dense infestations there.

"Prior to the Programme, local land holders and the Mid Dome Wilding Trees Charitable Trust were nibbling at the edges of the core area of wildings, and working their way back to these dense areas. Extra Programme funding has allowed us to make headway in tackling these dense areas of wilding conifers that have been a persistent, ongoing seed source in the area."

Randall Milne, Senior Biosecurity Officer, Environment Southland.



FINANCIAL REPORT 2017/18

PROGRAMME MANAGEMENT & RELATED ACTIVITIES

*includes Programme funds carried over from 2016-17

NATIONAL PROGRAMME	
	ACTUALS (\$)
National Wilding Conifer Information System (LINZ)	160,000
Programme Management, Communications and Behaviour Change, good practice development, workforce capability, monitoring and evaluation	336,000
Total	496,000

CENTRAL NORTH ISLAND

KAIMANAWA	
FUNDER	ACTUALS (\$)
National Programme	423,100
HBRC	38,821
WRC	2,000
HRC	40,555
DOC-HB	74,633
DOC-Taupo	35,000
Total	614,109

MARLBOROUGH

MOLESWORTH	
FUNDER	ACTUALS (\$)
*National Programme	743,687
DOC	198,151
Landcorp	44,080
Total	985,918

CANTERBURY

AMURI - LEWIS	
FUNDER	ACTUALS (\$)
*National Programme	223,000
ECAN	42,000
DOC	30,000
Private Occupiers	32,000
Total	327,000

ARTHURS PASS - CRAGIEBURN	
FUNDER	ACTUALS (\$)
National Programme	405,000
ECAN	36,000
DOC	24,335
Private Occupiers	14,000
Total	479.335

ARTHURS PASS - PORTERS	
FUNDER	ACTUALS (\$)
National Programme	60,000
ECAN	40,000
DOC	5,000
Landowners	40,000
Total	145,000

HAKATERE	
FUNDER	ACTUALS (\$)
National Programme	315,000
ECAN	63,000
DOC	29,000
Private Occupiers	30,000
Total	437,000

MACKENZIE - FOUR PEAKS	
FUNDER	ACTUALS (\$)
*National Programme	128,000
ECAN	50,000
Private Occupiers	5,000
Total	183,000

MACKENZIE - OHAU	
FUNDER	ACTUALS (\$)
National Programme	1,160,000
DOC	60,000
Landowners	200,000
Total	1,420,000

ACTUALS (\$)
1,073,598
20,000
15,000
410,580
1,519,178

MACKENZIE - TEKAPO EAST	
FUNDER	ACTUALS (\$)
National Programme	432,521
ECAN	60,000
DOC	7,000
Other (land owner)	104,000
Total	603,521

OTAGO

QUEENSTOWN - REMARKABLES	
FUNDER	ACTUALS (\$)
*National Programme	471,924
WCG (QLDC/DOC/LINZ/ Other)	202,746
Total	674,670

QUEENSTOWN - NORTHERN EYRE	
FUNDER	ACTUALS (\$)
*National Programme	158,113
WCG (QLDC/DOC/LINZ/ Other)	45,409
Total	203,513

QUEENSTOWN - KAWARAU	
FUNDER	ACTUALS (\$)
National Programme	304,467
WCG (QLDC/DOC/LINZ/ Other)	214,643
Total	519,110

CENTRAL OTAGO - LAMMERMOOR	
FUNDER	ACTUALS (\$)
National Programme	240,000
ORC	31,400
CODC/DCC/CDC	48,600
Private Occupiers	80,000
Total	400,000

SOUTHLAND

NORTHERN SOUTHLAND - FIVE RIVERS	
FUNDER	ACTUALS (\$)
National Programme	48,000
Mid Dome Wilding Trust	32,000
Total	80,000

NORTHERN SOUTHLAND - MID DOME	
FUNDER	ACTUALS (\$)
National Programme	955,800
Environment Southland (Mid Dome Trust)	288,000
Lotteries	100,000
Total	1,343,800

TOTAL PROGRAMME EXPENDITURE 2017/18

\$8,575,163

FINANCIAL VARIANCE

NATIONAL PROGRAMME FUNDING, CARRIED OVER TO 2018-19	(\$)
Central North Island - Kaimanawa	50,000
Marlborough - Molesworth	28,316
Queenstown - Northern Eyre	29,163
Queenstown - Remarkables	13,098
Total	120,586

