Engaging on Wildings

Social Research

with the general public & outdoor recreationists

June 2019

The Navigators

Ministry for Primary Industries
Manatū Ahu Matua

CONTENTS

Project background

In the right place, conifers offer shelter and opportunities for recreation and income, but left to spread they become a pest, infesting farmland, native ecosystems and water catchments. A quarter of New Zealand is vulnerable to wilding conifer (WC) invasion. Left unchecked, wilding conifers could cost the country billions in lost revenue opportunities, cause the extinction of native plants and animals, and change New Zealand's iconic landscapes.

By the early 2000s, many individuals and groups were seeing the spread of wilding seedlings from conifer plantings as a serious problem. By 2015, landholders and local and central government agencies were collectively spending around $11 million per year in wilding conifer control.

By 2016, this spread had affected over 2 million hectares – an area larger than all our commercial forests combined. In 2016, the National Wilding Conifer Control Programme was established to ensure a collaborative, coordinated and effective approach to national wilding management. Also at this time, the government allocated an additional $16 million of funding over four years to coordinated and strategic wilding control - aiming to prevent wilding conifers from spreading, and progressively removing them from land already invaded.

To build on the targeted WC efforts to date, the programme needs greater community and landholder engagement. That is, to engage with:

- **people who value most what is at stake and have an ability to act** - this includes people who have a direct connection with the issue (e.g. through landownership) and those who potentially have an interest in the issue (e.g. their personal values are possibly impacted by WC). For example, landowners, mana whenua, outdoor users/enthusiasts and local conservation care groups.
- **the general public** - the programme has wider reach and impact for all New Zealanders who have varying degrees of affinity with their surrounding landscapes and whose support is sought for the programme and its activities.

Landcare Research has conducted research with rural landholders and Scion research has conducted research with active groups in affected WC areas. However, little was known about WC awareness and attitudes amongst the general public and outdoor recreationists.

To build general public support for the control of wilding conifers, social research was undertaken to help identify the message and image territories that would best resonate with these broader audiences. As part of this, the research also benchmarked the general public's awareness, knowledge and perceived level of threat of WC.

The key groups of focus for this social research were the general public and outdoor recreationists who reside in cities.

Research objectives

The overall objective of the social research was to inform the development of messaging and imagery to help build public support for, and involvement in, preventing the spread of wilding conifers (WC).

Given the need for general public measures as well as in-depth feedback on reactions to the issue and control methods, both **quantitative** research (in the form of a general public online survey) and **qualitative** research (in the form of focus groups) were undertaken.

The specific research objectives and how they were addressed across the quantitative and qualitative research are as follows:

Research objectives	Quantitative research with general public	Qualitative research with outdoor recreationists
Awareness: Measure awareness of the general WC concept and the terms: 'wilding pines', 'wilding conifers' and 'wildings'	✓	✓
Level of threat: Understand perceived threat level of WC including harm/benefits and support for the issue (including relative to other social/environmental issues)	✓ (harm/benefits)	✓ (harm/benefits/ relativity)
Knowledge: Understand level of knowledge on WC, the sources of knowledge, and the trusted sources	✓ (level)	✓ (sources)
Support for control: Identify level of support for WC control and reasons for supporting or opposing different types of control	✓ (level)	✓ (reasons)
Message testing: Identify preferred 'issue' and 'need to control' messages as a whole and differences between population groups. Identify specific strengths and weaknesses with each message	✓ (preferences)	✓ (specifics)
Image testing: Understand reactions to a range of images that could be used to build public support to prevent the spread of WC		✓
Personal actions: Understand current WC actions and openness to potential actions	✓ (current)	✓ (openness)
Values: Understand if (and how) environmental/recreational values impact on perceptions of WC (the issue or support for control)	✓	✓

Quantitative research approach

The quantitative research was conducted via an online survey with the general public. The data from the survey provides a representative view of New Zealanders aged 18+ years, based on 1,346 interviews.

Specific details on the research methodology are:

- **Fieldwork timing:** The survey was in field between Wednesday 12 June and Tuesday 18 June 2019.
- **Survey duration:** 9 minutes
- **Sample source:** Dynata online survey panel (previously Research Now/SSI).
- **Sampling approach:** Stratified sampling was used to boost sample in the cities, regions or grouped regions of interest (see table).
- **Soft quotas:** Soft quotas were applied during data collection based on interlocked region, age and gender cells to ensure sensible weights would be applied in the weighting process.
- **Data weighting:** The final data file was weighted by region, age and gender using interlocked cells to provide a representative view of the general public.

Data interpretation notes:

- The margin of error on the total sample of n=1,346 is +/-3% on estimates of 50% at the 95% confidence level. At a regional or grouped-region level, the margin of error on the samples of n=100 is +/-10% on estimates of 50% at the 95% confidence level.
- Percentage totals in the charts may not equal 100% due to rounding. Likewise, nett totals may not be an exact total of percentage figures in the charts due to rounding.
- Some data labels on the charts are not shown where there are low percentages e.g. if the percentage is 1% or 2%.

Regions	Target sample	Achieved (including city boosts)
Northland	100	100
Auckland	200	200
Waikato	100	220
Bay of Plenty	100	100
Gis, HB, Taranaki, Manawatu, Wanganui	100	100
Wellington	100	100
Upper South Island (excl West Coast)	77	74
West Coast	8	18
Canterbury	100	190
Otago	100	152
Southland	100	92
Total	**1,085**	**1,346**
Auckland City	180	180
Hamilton City	150	150
Christchurch City	150	150
Dunedin City	90	95
Queenstown	20	8

Qualitative research approach

The qualitative research included three focus groups: two in Auckland and one in Christchurch. These focus groups were comprised of forest recreationists who undertake 'slower' forest activities. The reason for targeting city dwellers was that they represent a high proportion of the population and the programme team already had knowledge of people in rural and/or affected areas. 'Slower activities' were defined as activities in which people have the time to engage with the outdoors environment: e.g, trampers, hunters, day walkers, bush or forest picnickers/campers, freshwater anglers/whitebaiters/eelers and members of community conservation groups (as opposed to mountain bikers, trail runners, boaties, and so on).

In recruiting the focus groups we included Māori who identify with being kaitiaki of the land. We excluded anyone who worked for a local council, DOC, MPI, NIWA, Fish and Game, or worked with trees in any way. We also excluded anyone who was involved in wilding control as part of a community conservation group.

The focus groups included participants who were 20 years or older, and a mix of males and females.

The focus group in Christchurch was with people who were less informed about 'pest trees'. In Auckland two focus groups were held: one with people who were more informed about 'pest trees' and one with those who were less informed.

The structure and dates of the focus groups were as follows:

	Christchurch Mon 17 June	Auckland Tues 18 June
Less informed about 'pest trees'	Group 1	Group 2
More informed about 'pest trees'	NA	Group 3

Summary of key findings: Engaging with the general public wildings

Current scenario

- Half of New Zealanders are aware of WC terms or the unintended trees concept
- Only one-in-ten New Zealanders feel they have good knowledge on WC
- Most New Zealanders assume WC are beneficial or have no opinion
- Potential advocates are unsure whether to act due to low public knowledge (low social license)
- 'Wilding pines' is the most well-known and preferred term – people are less familiar with 'conifers'

Scenario after WC messages

In the quantitative research we provided participants with:

- *a definition of WCs and related terms*
- *four messages that explained the WC 'issue'*
- *six messages that explained the 'need for control'*
- *a description as to how WCs can be controlled*

After providing the WC messaging:

- Most New Zealanders believed WC are more harmful than beneficial

However:

- Half did not agree with aerial boom spraying to control WC

A few outdoor recreationists had strong (angry/upset) responses:

- Hunters related WC aerial boom spraying to the use of 1080 for pest control
- 'Why has this been happening and we haven't been told about it sooner?!'

Implications: Now appears to be a good time to increase WC messaging with the general public. Many people are aware of the terms/concept but are not well-informed on the topic. The tested WC messages successfully educated people on the harm of WC. Providing messaging now will help ensure the right messages are in the public arena and social license is established for government/individual control actions.

Messages that worked best

To explain the WC issue, the best message was:

- ***'Wilding conifers threaten New Zealand's native ecosystems.*** *Once established, wilding conifers form a closed canopy of shade and acidify the soil, making it unsuitable for the native plants and animals that rely on these'*

To explain the need for WC control, the best messages were:

- ***'We must act now to control wilding conifers.*** *Delays in treatment will quickly put the costs beyond our reach. One year's delay and infestations can cost 30% more to control'*
- ***'Right tree in the right place.*** *Conifers offer shelter and opportunities for recreation and income, but left to spread they become a problem for farmland, native ecosystems and water catchments'*

Note: These need to be supported by the other control messages.

Tree images did <u>not</u> work well with recreationists

- Images showing the spread of WC over the landscape over time did not work - because people prefer greener-looking landscapes.
- Images showing native bush versus wilding forests did not work - as people like conifer forests (as part of their mix of forest experiences), plus they don't believe a conifer forest would take over an already established native forest.
- Images showing iconic tussock lands (e.g. on Mount Ruapehu) being replaced with conifer forest did not work - as people prefer forests to 'barren' tussock lands.

Implications: New image territories, that do not use trees to illustrate the issue, need to be explored and tested. Given the effectiveness of the ecosystems theme, one option might be to illustrate the issue through the use of the native animals and plants that are threatened by WC spread.

DETAILED FINDINGS

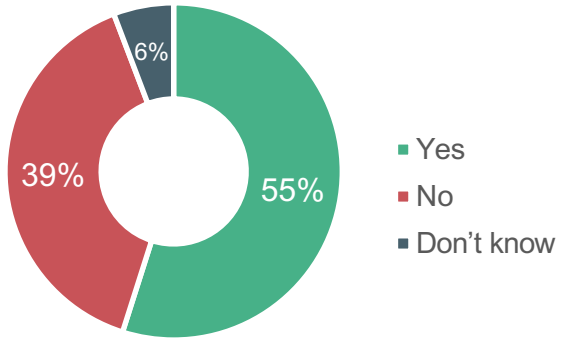
1. Awareness and knowledge of WC

- Half of all New Zealanders are aware of wilding conifers as a general concept
- However, New Zealanders' knowledge on wilding conifers is low
- It is easy for people with low knowledge to assume WC are a good thing
- 'Wilding pines' is the most well-known and preferred term

Half of all New Zealanders are aware that trees can self-seed and be unintended. Two-fifths are aware of unintended trees in their region.

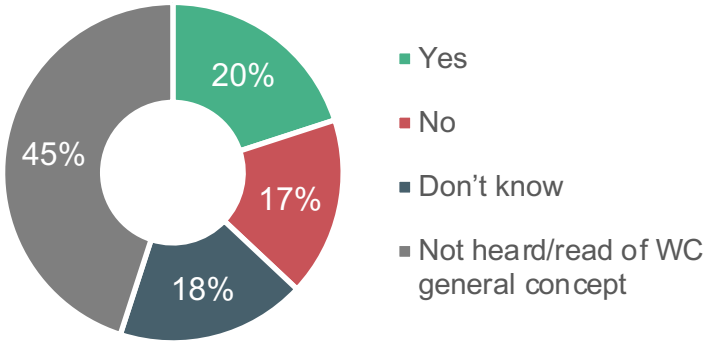
Awareness of WC as a general concept (without WC terms)

Q6. Have you heard or read that pine, fir or conifer trees can self-seed and create new, unintended trees or forests in New Zealand?
Base: n=1,346



Awareness of WC spread in local region

Q7. To the best of your knowledge, have pine, fir or conifer trees spread in your region – creating unintended trees or forests?
Base: n=1,346 (Question asked of those aware of WC general concept (n=777). Chart rebased to total population)



Who was less aware of the general concept?

- North Island (52%)
  - South Auckland (34%), Taranaki (30% n=16), Manawatu-Wanganui (49%)
- Females (49%)
- Large towns (47%)
- 30-39 year olds (47%)
- Those who are less involved in outdoor recreational activities (45%)

Who was more aware of the general concept?

- South Island (62%)
  - Upper South Island (70%) - which included West Coast (84% n=18); Marlborough (82% n=22); Tasman (79% n=19); Nelson (50% n=33) – note lower score in Nelson compared to other USI regions
- Older people (50-64 year olds, 63%; 65+ year olds, 84%)
- Rural areas (69%)
- Males (61%)
- Those involved in outdoor recreational activities

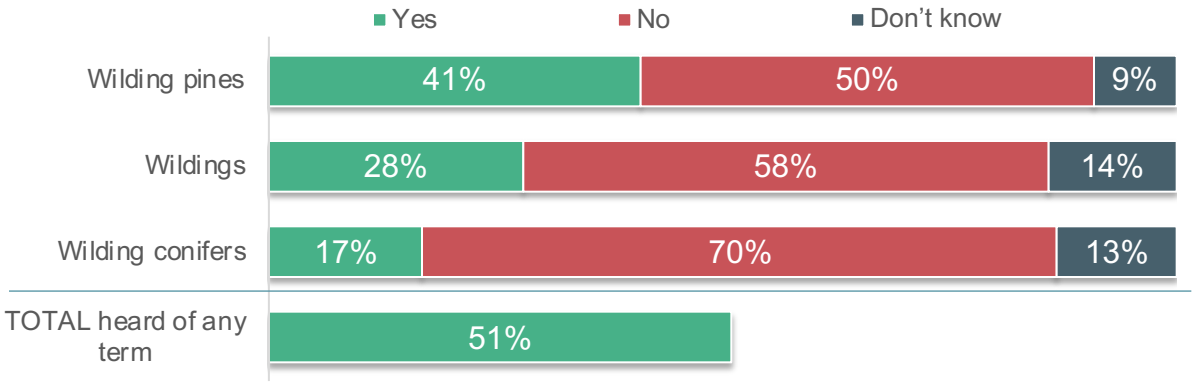
Who was more aware of WC spread in their region? (compared to 37% 'yes' before rebasing i.e. this is of those aware of the general concept)

- South Island (46%)
  - Nelson (83%), Marlborough (73%), Tasman (65%), Otago (49%)
- Rural (51%) and large towns (48%)
- 30-39 year olds (45%)
- People who were involved in outdoor recreational activities

Half of the population have heard one of the WC terms. ‘Wilding pines’ is most common and preferred. ‘Pests’ is seen as the more appropriate term rather than ‘weeds’.

Awareness of WC terms

Q8. Have you heard of the following phrases before? It’s fine if you haven’t.
Base: n=1,346



Qualitative insights on terminology

- **‘Wilding pines’ was the preferred term.** Many people were not clear on what a conifer was, but were more familiar with pine trees – with some using ‘Christmas trees’ as a reference point. Even informed recreationists were familiar with ‘wilding pines’ but not ‘wilding conifers’ – one person also noted that Kauri trees are conifers but wouldn’t be ‘wildings’. For people who were unaware of WC, the use of term ‘wilding’ (in whatever form) does suggest that the trees are unwanted and/or harmful.
  - ‘I love pine trees, pine trees are Christmas trees right?’ (Christchurch, female, lower WC knowledge)

- **Weeds or pests?** Most people thought ‘pests’ was the better term to describe wilding pines as it suggests something that shouldn’t be there and should be removed. ‘Weeds’ were seen as less serious and in fact were okay to have around – some related to the weeds in their gardens i.e. that were a pain rather than a serious problem. Weeds were also perceived to be relatively small in size – i.e. ‘not a 25-year-old massive pine tree’. Some people did find it difficult to think of a plant as a pest – they thought a pest should be an animal or an insect.
  - ‘If it’s named a pest then that means it’s on the core list of those noxious notifiable pest plants, whereas a weed is like a dandelion.’ (Tramper/ hunter/ angler, Auckland, male, higher WC knowledge)
  - ‘When I think of weeds I think of garden weeds not trees.’ (Christchurch)
  - ‘If they’re needing to be controlled, obviously it's a pest. Pest is a stronger word.’ (Christchurch)

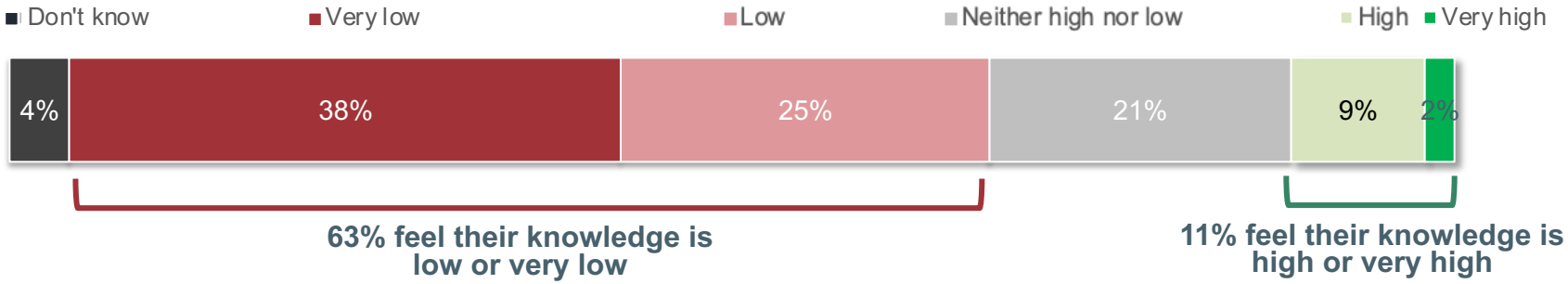
- **Escapees:** People could understand the reference to WC as being ‘escapees’ but they didn’t think it was a great descriptor. Strictly speaking some did not feel a tree could be an ‘escapee’ given that self-seeding is a natural process i.e. they were doing what nature intended.

Note: Throughout this report and in the survey questions we have used the term ‘wilding conifers’ (given it is the correct term), even though it is not the preferred term for the general public. From question 10 in the survey, respondents were provided with a definition of the terms and asked to think of the term they were most familiar with (if any) whenever they read ‘wilding conifers’ in a survey question.

Although half of the population have heard of WCs, self-professed knowledge is low

Level of knowledge on WC

Q9. How would you describe your level of knowledge on wilding pines or wilding conifers?
Base: n=1,346



Who had lower levels of knowledge?
(compared to 63% avg for 'low' or 'very low')

- Females (72%)
- 18-39 year olds (71%)
- Māori (71%)
- People who didn't undertake the recreational activities (71%)
- North island (66%) in particular Sth Auckland (72%), Taranaki (84%, n=16)
- Those in cities (67%)

Who had slightly higher levels of knowledge?
(compared to 11% avg for 'high' or 'very high')

- Males (18%)
- 65+ year olds (16%)
- People who undertook outdoor recreational activities
- West Auckland (22%), Tasman (21%, n=19), Waikato (18%)
- Those in rural areas (19%)

Qualitative insights
It is easy for those who lack knowledge, to presume WC are a good thing.

- 'There are programmes to plant trees… so if I had no background knowledge I would think "well isn't self planting trees a good thing?"' (Christchurch)

Qualitative insights
People with knowledge are much more able to understand the threat, spot WC in the environment, and speak about their need for control.

- 'They're a huge problem in Arthur's Pass. You can see them, there's little pine trees everywhere. I was told they're wilding pines. You can't do anything with them on the land so they need to go, I know DOC removes them.' (Christchurch)

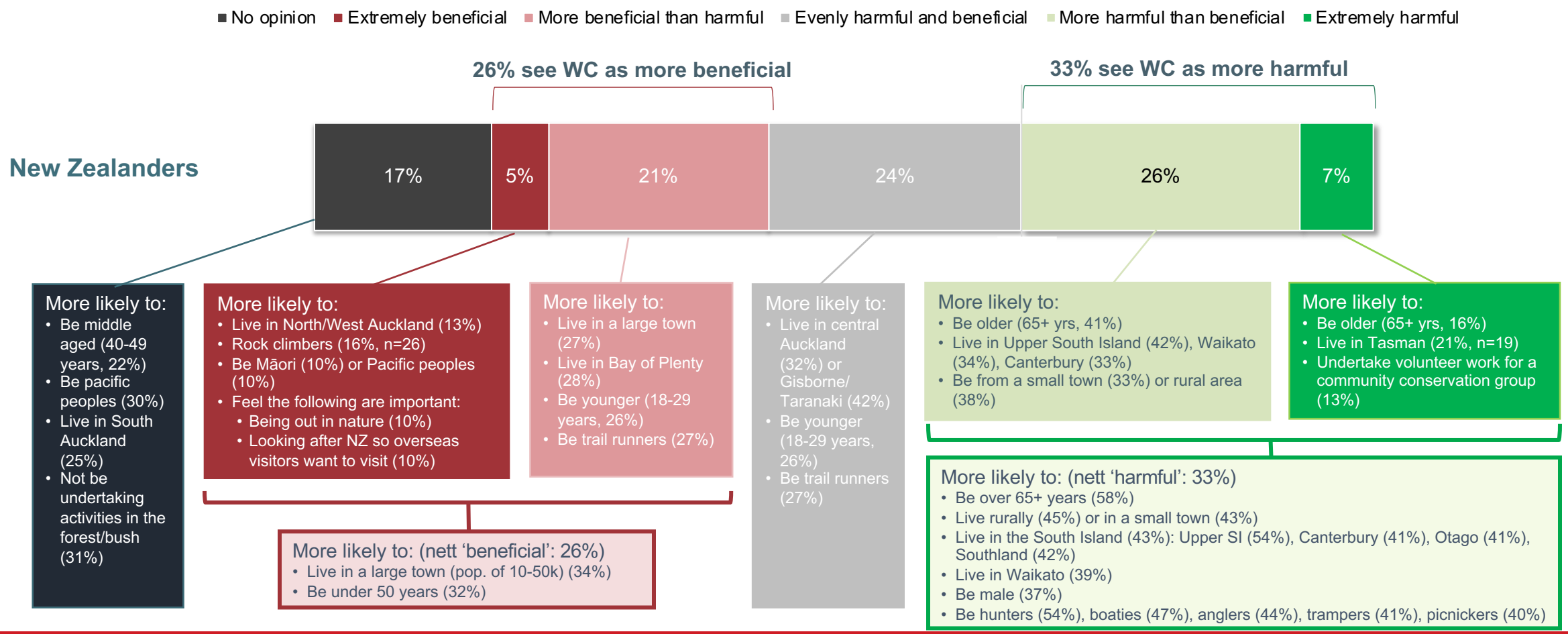
2. Perceptions of threat

- **Most New Zealanders perceive WC to be more beneficial than harmful or have no opinion –** those who see WC as more beneficial are more likely to be younger and live in Auckland or the Bay of Plenty
- **People with low awareness are more likely to assume WC are beneficial**
- **After receiving programme messages, most people instead believe that WC are more harmful than beneficial** – those who are more likely to switch from ‘harmful’ to ‘beneficial’ are female, under 30 years, live in Wellington and/or those who picnic/sightsee near bush/forest

One-third of New Zealanders feel that WC are more harmful than beneficial. One-quarter believe they are more beneficial. Two-fifths have no opinion.

Perceptions of WC harm vs benefit (before programme messages provided)

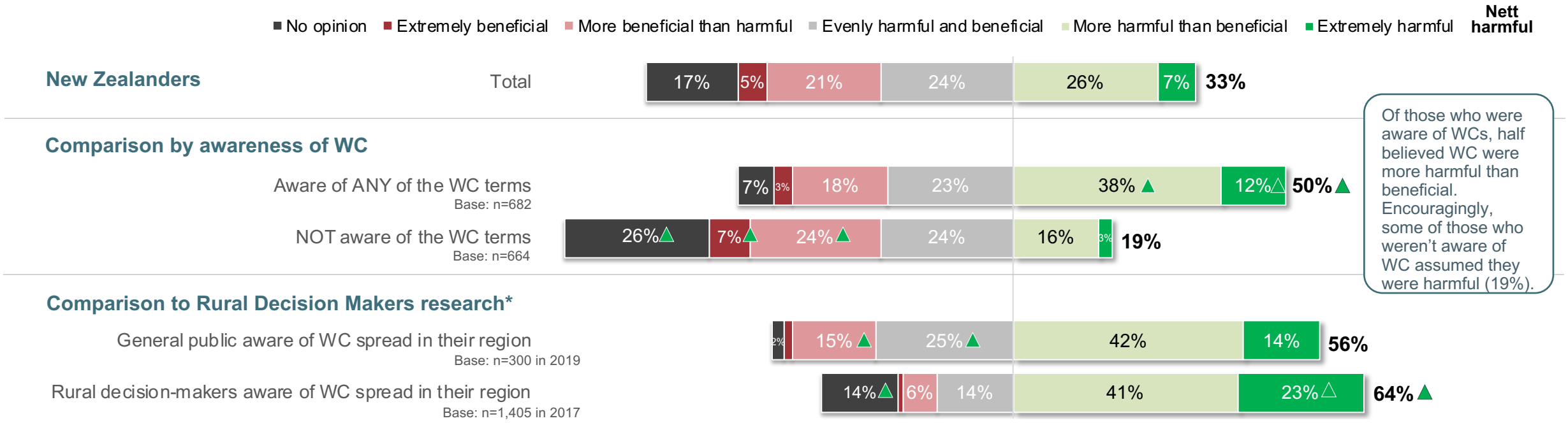
Q10. Based on your current knowledge, and even if you have only just heard about them… which of the following best describes your personal attitude towards wilding conifers? I know or expect that 'wilding conifers' are:
Base: n=1,346



People with low awareness are more likely to assume WC are beneficial. Rural decision-makers are more likely to think WC are 'extremely harmful' but also to have no opinion.

Perceptions of WC harm vs benefit (before programme messages provided)

Q10. Based on your current knowledge, and even if you have only just heard about them… which of the following best describes your personal attitude towards wilding conifers? I know or expect that 'wilding conifers' are:
Base: n=1,346



Of those who were aware of WCs, half believed WC were more harmful than beneficial. Encouragingly, some of those who weren't aware of WC assumed they were harmful (19%).

The two bars above provide a comparison of the measures from 2017 rural decision-makers research* to the 2019 general public research (based on those aware of the spread of WC in their region). The general public were more likely to believe WC are 'evenly harmful and beneficial' (25%) or 'more beneficial than harmful' (15%). Rural decision-makers (23%) were more likely to believe WC were extremely harmful, but were also more likely to have 'no opinion' (14%). Within the rural decision makers sample, those in targeted areas were even more likely to view WC as 'extremely harmful' (36% felt this way) or 'more harmful than beneficial' (37% felt this way). The Landcare measures are being repeated in 2019 – which will provide a closer time-period comparison.

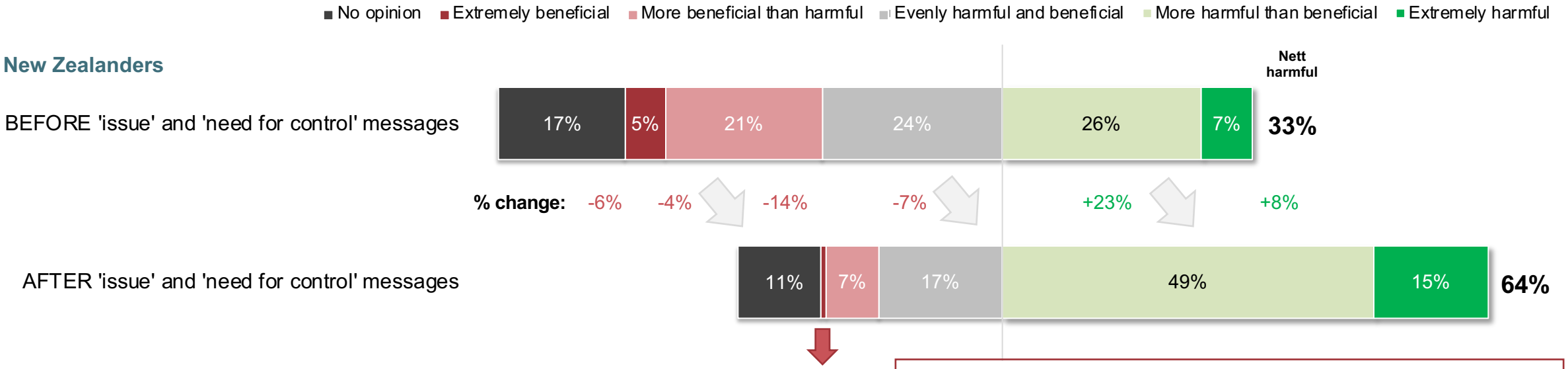
* Source: Landcare Research: Management of wilding conifers in New Zealand: Survey evidence October 2018. A survey of Rural Decision Makers. Data collected in 2017. Survey question: Which of the following best describes your personal attitude toward wilding conifers? (Conditional on reporting that pine or fir trees had become established outside of plantations in the district.)

▲ = Significantly higher than comparator

After reading the WC messages*, one-third of the population developed the opinion that WC are more harmful than beneficial… resulting in two-thirds agreeing in total

Changes in perceptions of WC harm vs benefit: Before and after WC programme messages

Q10. Based on your current knowledge, and even if you have only just heard about them… which of the following best describes your personal attitude toward wilding conifers? I know or expect that 'wilding conifers' are:
Q15. Based on what you have read in this survey and any prior knowledge, which of the following best describes your personal attitude toward wilding conifers now? I currently think that 'wilding conifers' are:
Base: n=1,346



Who still saw WC as extremely beneficial?
Of the 1% who still saw WC as extremely beneficial, most had some familiarity with WC, but interestingly half were okay with some form of WC control.

This 1% included 13 people, of which:
- 10 were male and 3 female
- there were a mix of ages
- 4 were from Waikato, 2 from Otago and 2 from Wellington
- 8 had heard of the 'unintended self-seeding' concept
- 10 had heard of one of the WC phrases
- 9 said that none of the 'issue' messages work for them
- 8 said they don't care about the 'need for control' messages; 1 did not agree with the messages
- 6 didn't agree with any form of control, 4 were okay with all forms of control, 2 okay with non-spray control, 1 okay with hand spray control

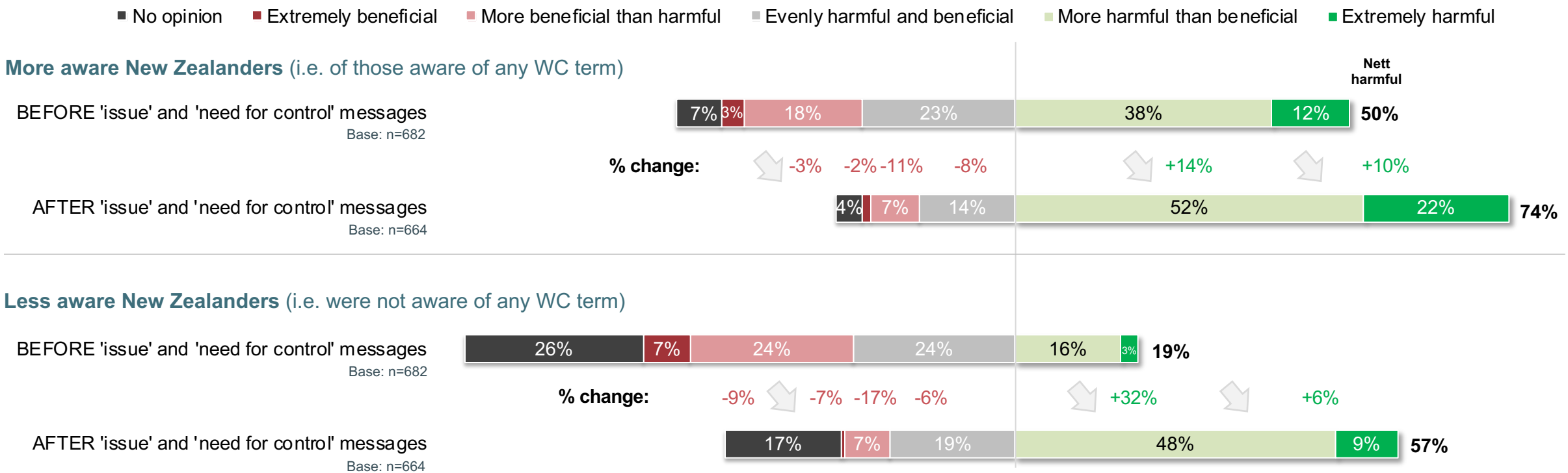
What do they see as the benefits of WC? (Quotes)
- 'Trees are good, these are not commercial trees and going to be cut down, they will continue to filter our air, I expect that to control them would cause more pollution and expense than their existence.'
- 'They are easy to manage.'
- 'They make the landscape appealing, they produce oxygen, it's a sustainable use of land as opposed to farming and industry.'
- 'Provide oxygen. Provides employment for our people. Outdoor experience. So much more.'
- 'It's part of nature for seeds to spread, anything else preventing this is against nature.'
- 'Trees don't do any harm, they can be cut down if not wanted. Good for erosion and gases.'
- 'Stop erosion, provide timber, shelter, fire wood, look good, fill in hill sides.'
- 'The more trees the better. We have 50 conifers here, been here for 40 years. not a single one has self seeded. This survey is wrong.'
- 'Provide shelter, shades, defend natural disasters, special events like Christmas, and so on.'

* See the sections 3 and 4 for the WC 'issue' and 'need for control' messages shown to respondents.

Less aware New Zealanders benefitted the most from the WC messages*.
But even those who were more aware benefitted, with one-quarter shifting their opinion.

Changes in perceptions of WC harm vs benefit: Before and after WC programme messages

Q10. Based on your current knowledge, and even if you have only just heard about them… which of the following best describes your personal attitude toward wilding conifers? I know or expect that 'wilding conifers' are:
Q15. Based on what you have read in this survey and any prior knowledge, which of the following best describes your personal attitude toward wilding conifers now? I currently think that 'wilding conifers' are:
Base: n=1,346

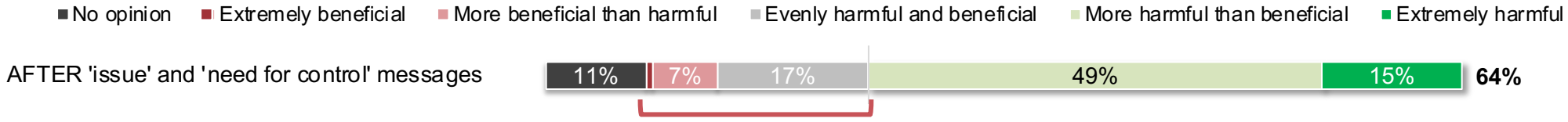


* See the sections 3 and 4 for the WC 'issue' and 'need for control' messages shown to respondents.

For those who still saw WC as beneficial (after the messaging), their main rationale was that any tree is better than no tree

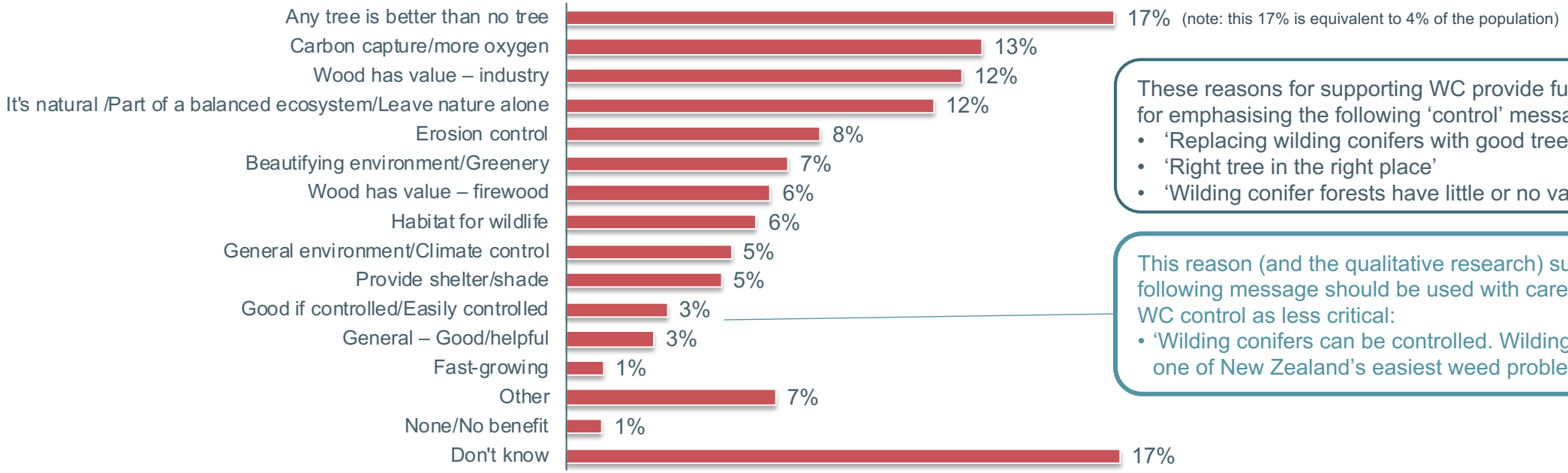
Perceived benefits of wilding conifers: After WC programme messages

Q16. What do you see as the benefits of wilding conifers? (Open response question – responses coded for chart below)



These people still believed WC are beneficial because…

Base: n= 300 (those who think WC are in any way beneficial at Q15 i.e.. Evenly, More or Extremely beneficial)



(note: this 17% is equivalent to 4% of the population)

These reasons for supporting WC provide further rationale for emphasising the following 'control' messages:

- 'Replacing wilding conifers with good trees'
- 'Right tree in the right place'
- 'Wilding conifer forests have little or no value'.

This reason (and the qualitative research) suggests the following message should be used with care, as it can render WC control as less critical:

- 'Wilding conifers can be controlled. Wilding conifers are one of New Zealand's easiest weed problems to deal with.'

Perceived benefits of WC: Example quotes from the general public

Quotes from those who still saw WC as 'more beneficial than harmful' even after receiving the messages

Q16. What do you see as the benefits of wilding conifers?

'Surely the wood can be used for something? Furniture? Paper?' Christchurch, 65yrs+, Female, No bush/forest activities

'All trees have benefits even wilding conifers.' Canterbury, 40-49 yrs, Female, No bush/forest activities

'They help to scrub the atmosphere and help keep the soil in place on hillsides only covered in grass, also as nesting sites for birds, but do need to be controlled or thinned to prevent overcrowding.' Northland, 50-64 yrs, Female, No bush/forest activities

'They are still trees. Pines are good for birds and even firewood.' Southland, 50-64yrs, Male, Tramper/Walker, Picnic/Sightseer

'I believe that nature has its own rules and plants can live together. However, the strong ones lives and the weak ones may die.' Auckland city, 40-49yrs, Male, No bush/forest activities

'Trees are always beneficial, they are nature and allow us to breathe, they create habitat for many animals and organisms and support our ecosystem.' Bay of Plenty, 18-29 yrs, Female, Tramper/Walker, Picnic/Sightseer

'Animal habitat, keeping the soil from eroding, and wood needed for buildings.' Northland, 50-64yrs, Female, Tramper/Walker (with overnight stays), Trail runner, Picnic/Sightseer

'They must have some value as timber.' Bay of Plenty, 50-64 yrs, Male, Tramper/Walker (with overnight stays)

'They are part of nature, they contribute to part of the ecosystem. They do photosynthesis to keep green-house gas level down.' Auckland, 18-29 yrs, Male , Trail runner, Kayaker

'Any tree is a good tree reducing our carbon footprint.' Wellington, 65yrs +, Male, Tramper/Walker

'Carbon offset. Harvestable value.' Dunedin, 65+ yrs, Male, No bush/forest activities

'Good for absorbing carbon dioxide.' Christchurch, 30-39yrs, Male, Tramper/Walker, Trail runner, Mountain biker

'They are beneficial to the production of oxygen into the air. While taking CO2 out of the air.' Wellington, 50-64 yrs, Male, No bush/forest activities

'Depending on where they are, they could be used as a cheap source of firewood. If compared to the land being bare, the trees would help prevent erosion & offer shelter to animals.' Christchurch, 50-64yrs, Female, Tramper/Walker, Angler

'Provide shelter and shade, soil erosion, source of timber.' Otago, 30-39 yrs, Female, Tramper/Walker, Picnic/Sightseer

'In inaccessible places they will hold the ground firm until they can be addressed, thereby preventing erosion and creating richer soil through their shedding and breaking down. They can still be used as a nursery crop with the native trees that can withstand more acidic soil and be removed as the native trees push through.' Auckland City, 50-64 yrs, Female, No bush/forest activities

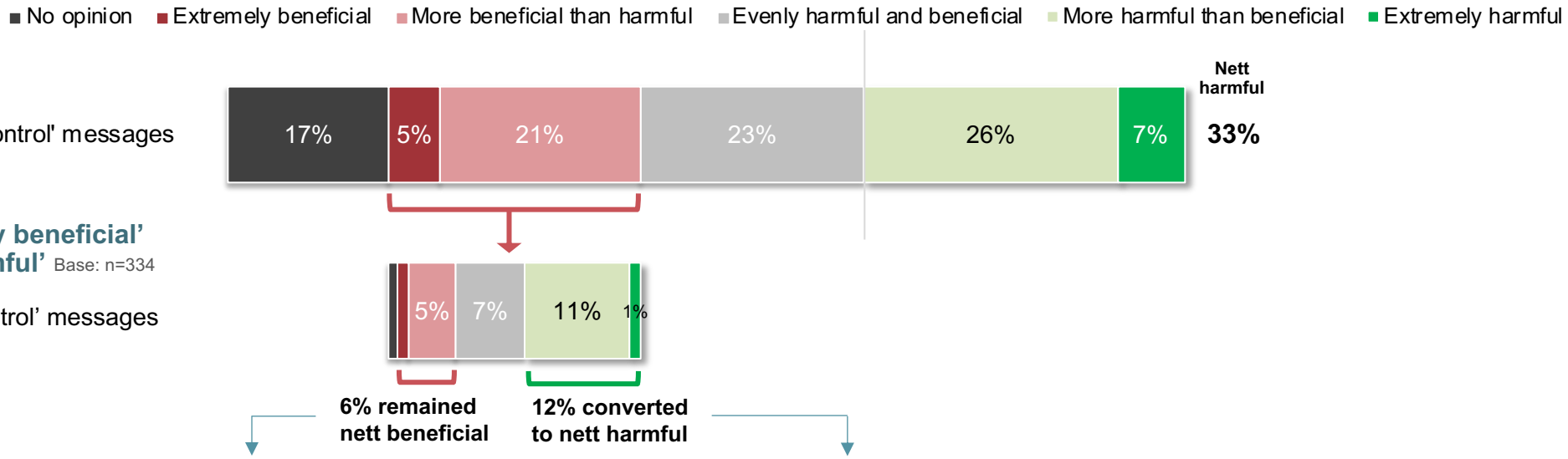
'They can be used for firewood and shelter.' Canterbury, 30-39yrs, Male, Tramper/Walker, Trail runner, Picnic/sightseer

'Good covering, fast growing for firewood.' Southland, 18-29 yrs, Female, Tramper/Walker, Camper, Picnic/Sightseer, Mountain biker, Boat/Jetskiier, Kayaker

Of those who initially believed WCs were beneficial… after seeing the WC messages, almost half switched to believe they were harmful

Perceptions of WC harm vs benefit (before and after WC programme messages provided)

Q10. Based on your current knowledge, and even if you have only just heard about them… which of the following best describes your personal attitude toward wilding conifers? I know or expect that 'wilding conifers' are:
Q15. Based on what you have read in this survey and any prior knowledge, which of the following best describes your personal attitude toward wilding conifers now? I currently think that 'wilding conifers' are:
Base: n=1,346



Who was more likely to maintain that WC are beneficial? (n=69)

- Male* (69% vs 47% were 'beneficial')
- Anglers* (21% vs 10%), MTBers (16% vs 6%), Boaties* (9% vs 4%), Rock climbers (9% vs 3%)
- Undertaken WC control on their own land (20% vs 5% were 'beneficial')
- Central Auckland (16% vs 9%), Nth Auckland (12% vs 8%), Waikato* (13% vs 9%)
- Those living in small towns* (16% vs 8%)
- Asians (14% vs 9%)
- Those who generally had lower outdoor/environmental values (53% vs 31%)

Who was more likely to move from 'beneficial' to 'harmful'? (n=164)

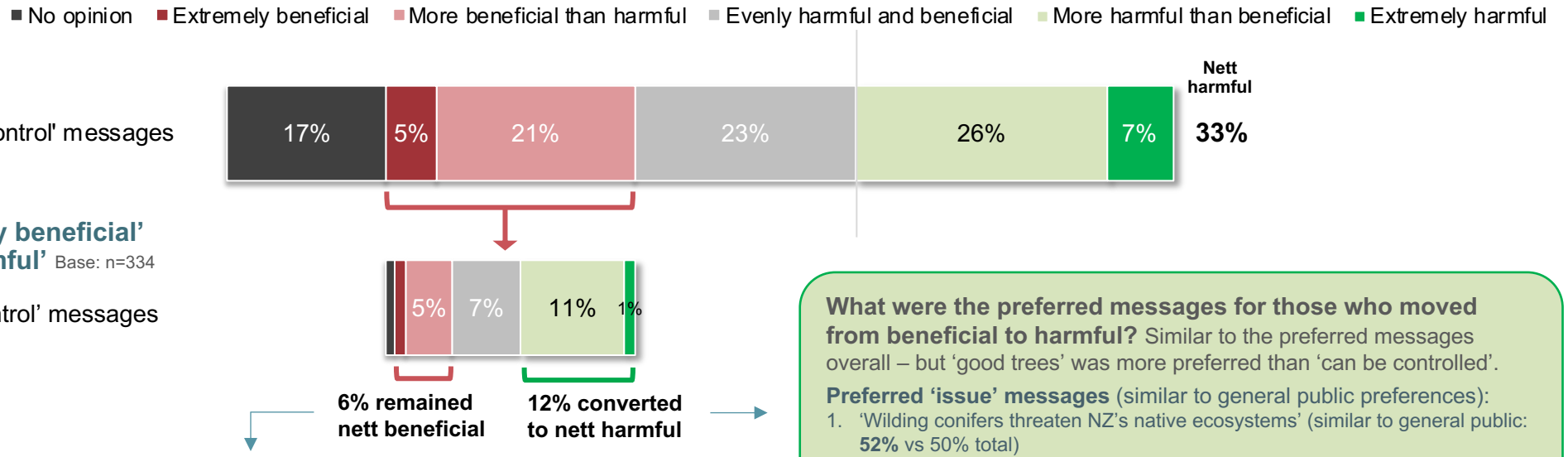
- Female (65% vs 53% were 'beneficial')
- Wellington (20% vs 13% were 'beneficial')
- Canterbury (16% vs 12% were 'beneficial')

* Note: Keeping in mind that in their wider groups, males, anglers, boaties, and those in the Waikato or in small towns are more likely to see WC as harmful (see slide 13).

Of those who initially believed WCs were beneficial – whether they changed their opinion or not – the preferred messages were similar to those preferred by the general public.

Perceptions of WC harm vs benefit (before and after WC programme messages provided)

Q10. Based on your current knowledge, and even if you have only just heard about them… which of the following best describes your personal attitude toward wilding conifers? I know or expect that 'wilding conifers' are:
Q15. Based on what you have read in this survey and any prior knowledge, which of the following best describes your personal attitude toward wilding conifers now? I currently think that 'wilding conifers' are:
Base: n=1,346



What were the preferred messages for those who maintained that WC are beneficial?

Preferred 'issue' messages (similar to general public preferences):

1. 'WCs threaten NZ's native ecosystems' (also a preferred message for the general public: **27%** vs 50% total)
2. 'Prevent the spread of wilding conifers' (similar to general public: **21%** vs 25%)

- Note: 46% felt that none of the messages worked for them

Preferred 'need for control' messages (similar to general public preferences):

1. 'We must act now to control wilding conifers' (in line with general public top preferences: **17%** vs 36% total)
2. 'Right tree in the right place' (in line with general public top preferences: **17%** vs 19% total)
3. 'Wilding conifers can be controlled' (in line with general public: **19%** and 14%)

- Note: 22% didn't agree with any of the messages, 10% didn't care, 11% didn't know

What were the preferred messages for those who moved from beneficial to harmful? Similar to the preferred messages overall – but 'good trees' was more preferred than 'can be controlled'.

Preferred 'issue' messages (similar to general public preferences):

1. 'Wilding conifers threaten NZ's native ecosystems' (similar to general public: **52%** vs 50% total)
2. 'Prevent the spread of wilding conifers' (similar to general public: both **25%**)
3. 'Wilding conifers threaten NZ's economy' (slightly more likely to prefer compared to general public: **14%** vs 8% total)

Preferred 'need for control' messages:

1. 'We must act now to control wilding conifers' (in line with the general public: **34%** vs 36% total)
2. 'Right tree in the right place' (in line with the general public: **23%** vs 19%)
3. 'Replacing wilding conifers with good trees' (slightly more likely to prefer compared to general public: **16%** vs 10% total)
4. 'Wilding conifers can be controlled' (slightly less likely to prefer compared to general public: **9%** vs 14% total)

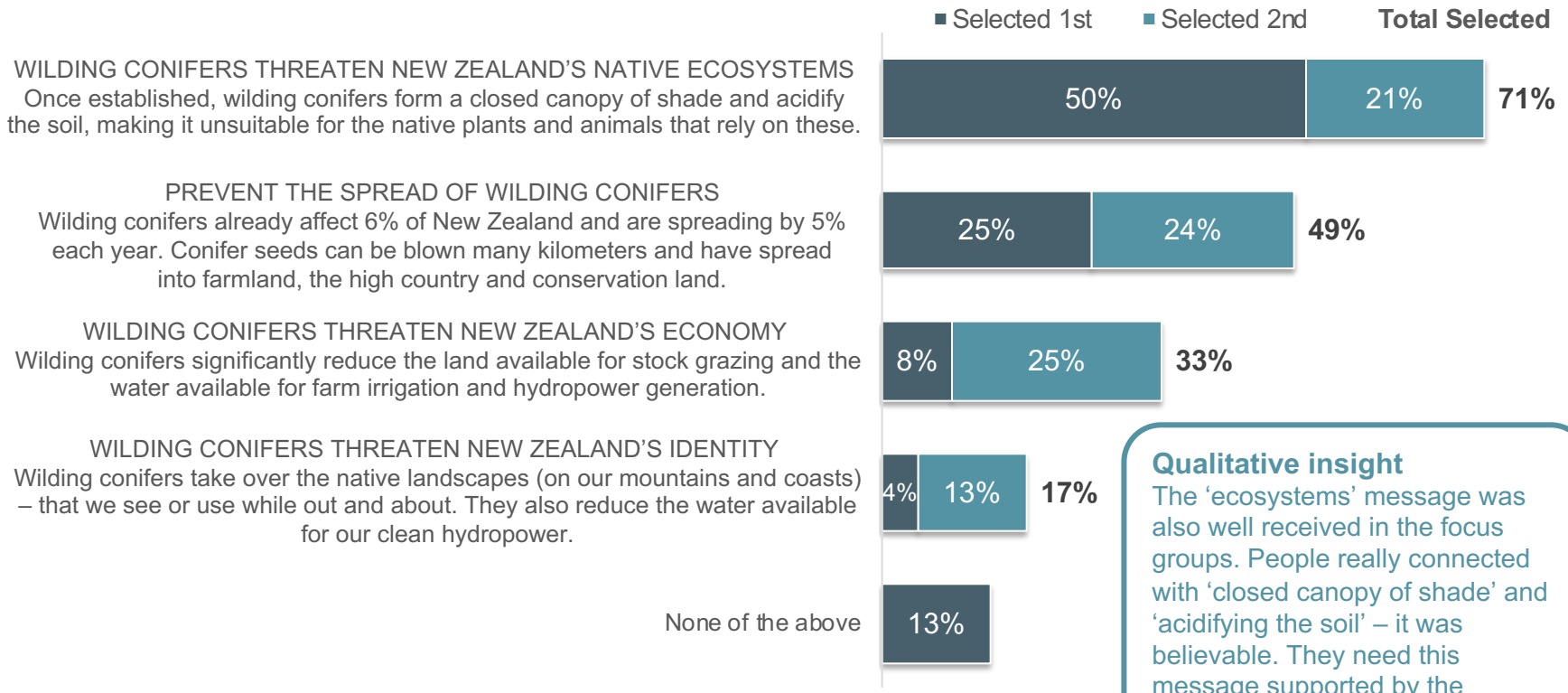
3. Reactions to 'the issue' themes

- **Best 'issue' theme:**
  - 'Native ecosystems' – this theme had much greater resonance with the general public compared to the NZ identity or economy themes
- **Themes to use in support:**
  - 'Prevent the spread' – this message provided valuable information to help people further understand the issue
  - 'Devasting forest fires' – created a sense of urgency for Christchurch residents who had knowledge of the Port Hill fires (it had less impact on Auckland residents)

The WC issue resonates more strongly with the general public when it's described from an 'ecosystems' perspective, as opposed to 'economic' or 'identity' descriptions

Preferred 'issue' message

Now we're going to show you some messages that you might see in a brochure, on a sign or in the newspaper. Q11. Have you heard this message before? Q12. Do you believe/trust this message? Q13. Which are the best and second-best messages in terms of making you aware (or reminding you) that wilding conifers are a problem? Or you may select 'none of these'.
Base: n=1,346



	Heard message	Don't believe	Don't understand
WILDING CONIFERS THREATEN NEW ZEALAND'S NATIVE ECOSYSTEMS	27%	12%	4%
PREVENT THE SPREAD OF WILDING CONIFERS	22%	11%	5%
WILDING CONIFERS THREATEN NEW ZEALAND'S ECONOMY	19%	21%	5%
WILDING CONIFERS THREATEN NEW ZEALAND'S IDENTITY	20%	19%	5%

Qualitative insight
The 'ecosystems' message was also well received in the focus groups. People really connected with 'closed canopy of shade' and 'acidifying the soil' – it was believable. They need this message supported by the 'prevent the spread' message and then followed by the relevant 'need for control' messages.

'Ecosystems' and 'Prevent the spread' received reasonably high levels of trust - over half the population (57%) believing/ trusting these messages. Approximately one quarter (27%) were 'unsure' – suggesting they need more information on the topic or more time to think.

Feedback on ‘the issue’ messages from outdoor recreationists: Ecosystems theme

Message provided: ‘Wilding conifers threaten New Zealand’s native ecosystems. Once established, wilding conifers form a closed canopy of shade and acidify the soil, making it unsuitable for the native plants and animals that rely on these.’

Many people connected with this theme – it helped them agree that wilding conifers are harmful. The end of the message needs clarification.

Pro:

- People really connected with ‘closed canopy of shade’ and ‘acidify the soil’ phrases – they could visualise this happening and so the message was believable.
  - ‘The ecosystem one was the one that really resonated because I suppose it’s where my values sit the most, I want to take my children in the future to see our ecosystem and native bush and trees.’ (Christchurch, lower WC knowledge)
  - ‘It makes sense when you hear it like that.’ (Day walker/ angler, Auckland, female, lower WC knowledge)
  - ‘To me it is believable and it makes sense. I can understand that it could happen.’ (Day walker/ hunter, Auckland, male, lower WC knowledge)
  - ‘I think I’ve just been educated with the ecosystems one, cause I never really thought of it in that way.’ (Christchurch, lower WC knowledge)
  - ‘What scared me was how the acidity of the soil makes it unsuitable for other plants and animals.’ (Christchurch, lower WC knowledge)
  - ‘The ecology one, that had the most positive response for me because of the limited knowledge I do have, it makes sense.’ (Christchurch)
  - ‘If you look under the actual pines, there’s nothing there, you realise they’re really bad for the ecosystem.’ (Christchurch, lower WC knowledge)

Con:

- Some people were confused about the ‘that rely on these’ wording - and whether the animals were native or included any animal that relied on native forest.
  - ‘I was a bit confused. Is it just animals that then use native plants or is it that animals require something else? … Also I take it that it is any animals that require native plants for survival, whether it’s nesting in them or eating?’ (Tramper, Auckland, female, lower WC knowledge)

Feedback on ‘the issue’ messages from outdoor recreationists: Prevent theme

Message provided: ‘Prevent the spread of wilding conifers. Wilding conifers already affect 6% of New Zealand and are spreading by 5% each year. Conifer seeds can be blown many kilometres and have spread into farmland, the high country and conservation land.’

Some people felt that this theme really helped them understand why WC are an issue. The impacts just need to be more relatable.

Pros:

- Some people were drawn to the idea of ‘preventing’ as a positive message.
  - ‘This was the best message for me because prevention is better than a cure.’ (Forager, Auckland, female, Māori, lower WC knowledge)
- The ‘seeds can be blown many kilometers’ was important for many people’s understanding of why WC are an issue. This was a believable phrase for many.

Cons:

The sentence containing the percentage figures need to be explained in another way. People need this information but expressed in a way they can relate to.

- Many people were confused by the 5% and 6% figures – some did not know how to interpret them and some interpreted them incorrectly.
  - ‘I found the percentage of that one really confusing, so saying they already affect 6% of New Zealand but then they spread around 5% each year. Spreading by 5%, I have no idea what that meant. 5% of the 6%?’ (Tramper, Auckland, female, lower WC knowledge)
- People commented that the percentages seemed small and therefore made the impact of WC seem small.
  - ‘If you were using this as a promotional message, a lot of people will glaze over that statistic. It doesn’t seem like a whole lot when you say 5 or 6%. When you think about it, it’s a significant amount, but if you were to have that, I don’t know if people would register the impact.’ (Day walker/ angler, Auckland, female, lower WC knowledge)
  - ‘For a lot of people 6% is a small number and small numbers don’t mean a lot to New Zealanders. It seems like a small number when 94% of the country is not affected.’ (Christchurch, lower WC knowledge)
- People also found it hard to understand what land mass was being affected and needed an example they could understand e.g. how many football fields?
  - ‘I was like, what is the impact of that? How big is that? What sort of problem is that? I have no context about what to frame that on, what to sit it on.’ (Tramper, Auckland, female, lower WC knowledge)

Feedback on ‘the issue’ messages from outdoor recreationists: Prevent theme (continued)

Message provided: ‘Prevent the spread of wilding conifers. Wilding conifers already affect 6% of New Zealand and are spreading by 5% each year. Conifer seeds can be blown many kilometres and have spread into farmland, the high country and conservation land.’

Cons (continued):

- Some found it hard to believe that WC were spreading by 5% each year.
  - ‘I couldn’t believe that “5% each year” cos that means it will almost in 20 years cover the whole country. I don’t see that.’ (Tramper/ angler, Auckland, male, higher WC knowledge)
  - ‘5% per year seems hard to believe, they've been around for a while so you wonder why they haven’t covered the whole of NZ yet.’ (Christchurch)
- Some also questioned how the 6% figure could be calculated when the trees are spread out all over New Zealand.
  - ‘I don’t believe this. I don’t know where somebody’s been all over New Zealand in a helicopter and documented every tree. I don’t see how they can be that specific.’ (Angler, Auckland, male, lower WC knowledge)
  - ‘It depends on what you mean by affect. Does that mean 6% is completely blanketed with pines or has it just got the potential to do that? You’re getting isolated ones spreading and if you don’t do anything about it, they’ll thicken up eventually and form the canopy.’ (Tramper/ trapper, Auckland, male, higher WC knowledge)

Considerations for message edits:

- People felt that it would be helpful if the ‘prevent’ message also referred to how WC can grow in extreme terrains, grow quickly and spread rapidly. People often teamed ‘rapid’ references to the ‘native ecosystems’ theme. For example, below are some recreationists’ explanation of the WC issue:
  - ‘[WC] easily spread a long way and have rapid growth, which can take over vast spaces in a short period of time; causing damage to native and more appropriate plants as well as damage to land.’ (Day walker/ hunter, Auckland, male, lower WC knowledge)
  - ‘[WC] spread/grow easily everywhere.’ (Forager, Auckland, female, lower WC knowledge)
  - ‘They spread rapidly and affect the native trees.’ (Tramper, Auckland, male, lower WC knowledge)
  - ‘They can spread a great distance and they can inhibit the growth of native species.’ (Day walker/ angler, Auckland, female, lower WC knowledge)
  - ‘They grow/spread quickly, limit the growth of native plants and change the natural state of the New Zealand ecosystem.’ (Tramper/ angler, Auckland, male, higher WC knowledge)

Feedback on ‘the issue’ messages from outdoor recreationists: Economy theme

Message provided: ‘Wilding conifers threaten New Zealand’s economy. Wilding conifers significantly reduce the land available for stock grazing and the water available for farm irrigation and hydropower generation.’

A few people connected with this theme more than other themes. Some found it hard to believe.

Pro:

- A few people felt they understood the threat of WC on hearing about the impact on ‘farm irrigation and hydropower generation’.
  - ‘[I liked hearing] how it impacts the farm irrigation and hydro generation to the extent that it has the impact of causing some devastation on those areas. That’s quite interesting to me.’ (Tramper, Auckland, male, lower WC knowledge)
  - ‘I believed it knowing how much NZ relies on export of meat and farming.’ (Christchurch)

Cons:

- Some people found it hard to believe that WC could threaten New Zealand’s economy.
  - ‘I thought it was quite a big leap to say that it’s threatening New Zealand’s economy. When you think of that as 6%, it might be making a dent in it but I didn’t quite believe that statement.’ (Day walker/ fishing, Auckland, female, lower WC knowledge)
  - ‘I’m thinking, is it really threatening farm irrigation?’ (Tramper, Auckland, male, higher WC knowledge)
  - ‘[This didn’t work for me] because I just couldn't put the two together.’ (Christchurch, lower WC knowledge)
- Some people felt that if WC were reducing the land available for grazing that they would have heard about it – as a result people found it hard to believe.
  - ‘I also questioned when we were talking about here... “significantly” is quite a powerful word and I’m not aware of stock running out of grazing. I think if it was significantly reducing, we’d probably hear about it through other avenues by now. Obviously, it’s the backbone of New Zealand’s economy as they say and it’s always in the news, but I’ve never heard of this.’ (Day walker/ hunter, Auckland, male, lower WC knowledge)
- Some people found it hard to believe that WC could significantly reduce the water available for farm irrigation or hydropower.
  - ‘The things that didn't make sense was around the irrigation and hydro-power because all trees suck up water, so how much more do wilding pines suck up? Will it really effect how much water goes down the streams?’ (Christchurch) (plus see quotes on next slide)

Feedback on ‘the issue’ messages from outdoor recreationists: Identity theme

Message provided: **‘Wilding conifers threaten New Zealand’s identity.** Wilding conifers take over the native landscapes (on our mountains and coasts) - that we see or use while out and about. They also reduce the water available for our clean hydropower.’

This message did not articulate an issue that was strongly valued and/or comprehendible. People were not highly concerned with WC taking over mountains and coasts. The ‘native ecosystems’ message was a more relevant message compared to this one.

Pro:

- A few liked that ‘native landscapes’ was clarified as ‘mountains and coasts’ so that it was more evident that the phrase was not referring to native forest – this made the statement more believable.

Cons:

- People felt they needed more information on how WC take over native landscapes and the impact of this.
  - ‘I didn’t really understand… to say that it takes over all the stuff. Take over how? I needed something to back it up.’ (Tramper, Auckland, female, lower WC knowledge)
- People found it hard to believe that WC could reduce the water available for hydropower - they felt they needed more information to understand /believe this.
  - ‘[Regarding] the water and hydro power. There’s no stats there. It’s just an out there comment. I didn’t really believe that one.’ (Day walker/ hunter, Auckland, male, lower WC knowledge)
  - ‘It’s quite a big jump. You talk about one thing and then all the way to hydro. I was like, hold on, what are the in-between things? Two very different concepts, in my mind anyway.’ (Tramper, Auckland, female, lower WC knowledge)
  - ‘How do they reduce water? They don’t grow in lakes or rivers? How do they affect the water?’ (Hunter, Christchurch, male, lower WC knowledge)
  - ‘I found it hard to believe, thinking “really?” We found the pine trees to be quite handy… shelter for us and shelter for the animals on farms and in the wild. It’s like give and take.’ (Christchurch, lower WC knowledge)
- Some people didn’t see a link between ‘New Zealand’s identity’ and ‘clean hydropower’ – they felt that trees have a stronger link to NZ’s identity.
  - ‘I would say our native landscape is part of our identity, but I don't think hydropower is.’ (Christchurch)
  - ‘When I see those commercials saying “keep NZ clean and green”, I think of pines trees as being “the tree”.’ (Christchurch)

Feedback on ‘the issue’ messages from outdoor recreationists: Fire theme

Message provided: **‘Wilding conifers can fuel devastating forest fires.** Without fire breaks and dams for fire control, a wildfire in a conifer forest is far harder to control.’

Some people felt this message provided them with another reason to agree that WC are a threat. This message resonated more strongly with people in Christchurch (as opposed to those in Auckland).

Pros:

- Most people found this message easy to understand and believable.
- Christchurch recreationists seemed to relate to the message the most given their experience with the Port Hill fires.
  - ‘I think the fires is a powerful message - the fires is the thing most people can relate to. Trees don’t scare people but fires do.’ (Christchurch)
  - ‘With the fires thing and pine, it’s a classic example with the Port Hill fires - it was all pine up there.’ (Christchurch)
  - ‘One of the things that got me the most was about the number of wild fires we’ve had lately overseas and here in Christchurch.’ (Christchurch)
- People liked the use of the phrases ‘devastating forest fires’ and ‘far harder to control’.

Con:

- A few people found this message hard to understand and/or believe.

Note: this message was not tested in the quantitative research.

Feedback on ‘the issue’ messages from outdoor recreationists: No.1 weed theme

Message provided: ‘Wilding conifers are New Zealand’s no.1 weed’

People were confused by this message and/or found it hard to believe.

Cons:

- People weren’t sure how ‘no.1 weed’ would be defined. There were questions around whether it would be the most prevalent weed, the fastest growing, the ‘biggest growing’; or if it was the most damaging weed, the weed that flourishes the best in many environments and/or can cause greatest harm to ecosystems.
- People found it hard to believe that WC could be ‘New Zealand’s no.1 weed’ compared to other weeds they are aware of e.g. gorse.
  - ‘Maybe it’s my ignorance but is it the number one weed if there’s like onion weed and buttercups and all that sort of thing? I didn’t know if I quite believe that.’ (Day walker/ fishing, Auckland, female, lower WC knowledge)
  - ‘I find it hard to believe that last one. When you have pampas grass, gorse, lake weed, you name it.’ (Tramper/ trapper/ hunter, Auckland, male, higher WC knowledge)
  - ‘I find it hard to believe it's the biggest weed, I would have thought gorse or matagouri.’ (Christchurch)

Note: this message was not tested in the quantitative research.

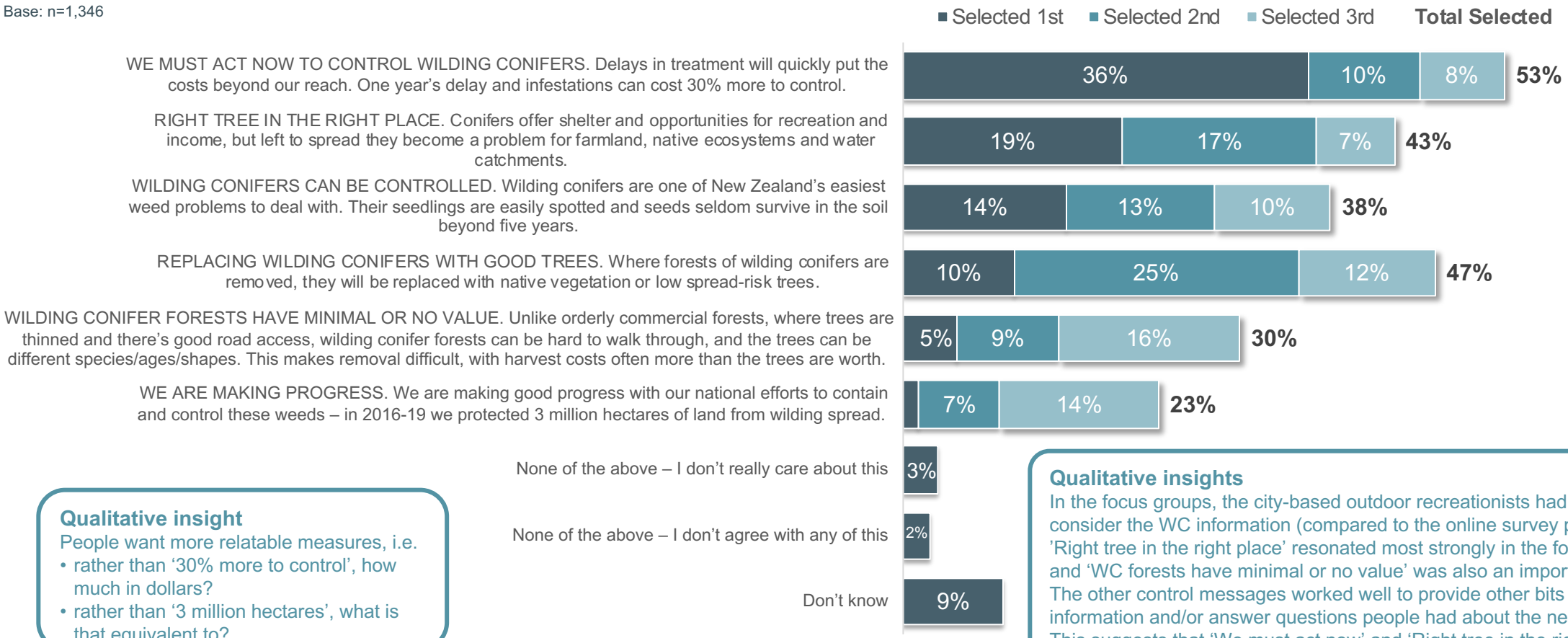
4. Reactions to the 'need for control' themes

- **Best 'need for control' message themes:**
  - 'We must act now' – preferred overall
  - 'Right tree in the right place' – favoured by those who are less likely to support the use of herbicides
- **Most of the other control messages are also valuable** – they answer questions which otherwise stand in the way of people seeing WC as more harmful than beneficial
- **The 'WC are easy to control' message is detrimental to the effectiveness of the other messages** – consider its use with care

When thinking about WC control, the ‘we must act now’ message resonated most strongly with the general public, followed by the ‘right tree in the right place’ message

Preferred 'control' message (Messages in chart are ordered by those ‘selected 1st’)

Q14. Here are some other messages that you might see or hear. Please select the 1-3 best messages for you personally, in terms of helping you understand (or reinforce) the need for action to be taken to control wilding conifers. You may also select ‘none of the above’ or ‘don’t know’.
Base: n=1,346



Qualitative insight
People want more relatable measures, i.e.
- rather than ‘30% more to control’, how much in dollars?
- rather than ‘3 million hectares’, what is that equivalent to?

Qualitative insights
In the focus groups, the city-based outdoor recreationists had more time to consider the WC information (compared to the online survey participants). ’Right tree in the right place’ resonated most strongly in the focus groups and ‘WC forests have minimal or no value’ was also an important message. The other control messages worked well to provide other bits of positive information and/or answer questions people had about the need for control. This suggests that ‘We must act now’ and ‘Right tree in the right place’ should be lead messages, with the other messages used in support. Although caution should be used with the ‘easy to control’ message – it conflicts some of the other messages.

Feedback on ‘need for control’ messages from outdoor recreationists: Must act now theme

Message: ‘**We must act now to control wilding conifers.** Delays in treatment will quickly put the costs beyond our reach. One year’s delay and infestations can cost 30% more to control.’

While this message was the most helpful to the general public (in terms of understanding/reinforcing the need for WC control), ‘right tree in the right place’ resonated more strongly with outdoor recreationists. Perhaps this is a difference in outdoor recreationists having stronger environmental awareness, while the general public (despite having positive attitudes towards protecting ecosystems) are more focused on the ‘urgency’ in terms of the ability to control and the economics.

Cons:

- Recreationists had difficulty believing that ‘one year’s delay can cost 30% more to control’ i.e. 30% seemed to be unrealistically high, especially compared to the fact that WC are spreading by ‘5% per year’.
  - ‘One thing I didn’t think too much of is, “one year’s delay and infestations can cost 30% more to control”. Wouldn’t it be 5% more given that they’re only increasing by 5% every year? That’s a very simplistic way of looking at it, but 30%, that seems like quite a leap. I would need to understand where the 30% came from. It might be right but again, just at face value, it’s quite a jump.’ (Day walker/ hunter, Auckland, male, lower WC knowledge)
- Recreationists also had difficulty understanding that ‘one year’s delay can cost 30% more to control’. People felt it would be easier to understand the cost impacts if a dollar figure was provided.
  - ‘The percentage is hard to interpret, because 30% of what? A dollar figure would be easier to understand.’ (Christchurch)
- A few people felt that ‘treatment’ was not an appropriate word, or were unclear what was meant by the word, in this type of scenario.
  - ‘What is treatment? That didn’t make sense to me.’ (Tramper, Auckland, female, lower WC knowledge)
  - ‘When I heard the phrase “delays in treatment” there was a disconnect there. When I think of treatment, I think of fixing. I guess, if you think about it, it’s like fixing the land but at first I was like, fixing the conifers, the trees. I don’t like to associate “treatment” with killing off a whole group of trees.’ (Day walker/ angler, Auckland, female, lower WC knowledge)

Feedback on ‘need for control’ messages from outdoor recreationists: Right place theme

Message: ‘**Right tree in the right place.** Conifers offer shelter and opportunities for recreation and income, but left to spread they become a problem for farmland, native ecosystems and water catchments.’

This message really resonated with outdoor recreationists – it was seen as believable and well balanced while also tapping into their ‘native ecosystem’ values. Many recreationists were familiar with ‘right tree in the right place’ i.e. there is established social equity with this phrase.

Pros:

- Recreationists agreed with this statement and found it believable. They felt this message was rational without exaggeration or ‘scaremongering’ and as a result built trust in the voice of the messenger.
  - ‘I like right tree in the right place. You can see where the idea is going but it’s not pushing it to stupid levels. It’s very balanced and that makes everything else that’s said a lot more believable as well. … It builds a picture of who’s doing this and who’s writing this. They’re coming up with comments and statements that are easily understood and very balanced in their approach and not saying conifer Armageddon’s upon us. It’s very sensible, I guess is what I’m trying to say is that it’s not agenda-based, it’s realistically-based.’ (Day walker/ hunter, Auckland, male, lower WC knowledge)
  - ‘I thought right tree in the right place was important. If we’re gonna have conifers, we could have millions of them but if they’re all in the one place we want, then that’s great.’ (Angler/ tramper, Auckland, male, higher WC knowledge)
  - ‘[It helps me understand that] any tree is a good tree as long as it is in the right place. If it’s in the wrong place, we cut it down.’ (Christchurch)
- Recreationists liked the phrase that WC can ‘offer shelter and opportunities for recreation and income’ – they agreed with this phrase about the benefits of conifers and felt they needed to hear it to again trust the messenger.
- Recreationists connected more with the phrases that WC could become an issue for ’native ecosystems’ as opposed to ‘farmland’ or ‘water catchments’.

Feedback on ‘need for control’ messages from outdoor recreationists: Right place theme (continued)

Message: ‘**Right tree in the right place.** Conifers offer shelter and opportunities for recreation and income, but left to spread they become a problem for farmland, native ecosystems and water catchments.’

Con:

- A few felt there was a contradiction in this message, in that, conifers were seen as a good tree (in the right place) but also as a bad tree (in the wrong place) – so if bad trees were spreading from good trees – weren’t they all bad trees?
  - ‘I understand the phrase but I don’t believe it. I don’t believe that it’s good. They’re trying to kill off the pest but then they say, “It’s a good place to plant.” They shouldn’t be planting them anywhere if they’re a pest. If you believe all these statements, that they’re spreading at 6% a year, you’re just encouraging the growth.’ (Angler, Auckland, male, lower WC knowledge)

Consideration:

- Some recreationists felt they also needed to know how WC ‘become a problem’ after reading this message i.e. they wanted more details.
  - ‘I think [this message] is quite down-to-earth in terms of it’s just what it is. But I think it’s missing saying, “They become a problem because…” I still want to know why.’ (Tramper, Auckland, female, lower WC knowledge)

Feedback on ‘need for control’ messages from outdoor recreationists: Controllable theme

Message: ‘**Wilding conifers can be controlled.** Wilding conifers are one of New Zealand’s easiest weed problems to deal with. Their seedlings are easily spotted and seeds seldom survive in the soil beyond five years.’

This message was detrimental to the effectiveness of the other messages; it was seen to provide conflicting information and downplayed the seriousness of the WC issue – consider its use with care.

Pro:

- A few people liked this message as they felt it was optimistic.

Cons:

- The phrase that WC are one of ‘the easiest weed problems to deal with’ downplayed the seriousness of the WC issue for some people. People felt this message conflicted with the ‘we must act now’ message.
  - ‘It says that it’s easiest to deal with. Then, why is there a discussion on at the moment?’ (Tramper, Auckland, male, lower WC knowledge)
  - ‘If it’s easy, why do I need to pay attention or why are you trying to get my attention on it?’ (Tramper, Auckland, female, lower WC knowledge)
  - ‘You don’t wanna give people more reasons to leave it, you wanna highlight the urgency. Maybe you could leave that bit out.’ (Angler/ tramper, Auckland, male, higher WC knowledge)
  - ‘If they’re so easy to be controlled why do they need to raise awareness?’ (Christchurch)
- People also questioned why boom spraying would be required if WC were ‘one of the easiest weeds to deal with’.
- Some people commented that there was a contradiction between being the ‘easiest weed problem to deal with’ compared to the message that WC are ‘New Zealand’s no.1 weed’.
  - ‘It’s a total contradiction - if it’s so easy to control why is it New Zealand’s worst weed?’ (Christchurch)
- Some also felt that there was a contradiction between being the ‘easiest weed problem to deal with’ and their thinking that older trees would not be so easy to deal with.
  - ‘A 5 year-old conifer you can chop down with a small axe, but they grow for 50-100 years, those ones high in the bush are huge.’ (Christchurch)

Feedback on ‘need for control’ messages from outdoor recreationists: Controllable theme (continued)

Message: ‘**Wilding conifers can be controlled.** Wilding conifers are one of New Zealand’s easiest weed problems to deal with. Their seedlings are easily spotted and seeds seldom survive in the soil beyond five years.’

Cons (continued):

- Some more knowledgeable people commented that small WC may be relatively easy to deal with (compared to other weeds) - but large forests and trees in hard to reach places would not be easy to deal with.
  - ‘It’s really one of the easier weeds to control because it doesn’t regrow from the stump. If you cut gorse off at the bottom, it’ll just come away. It’s a numbers game. It’s been building up for a number of years and nobody’s bothered doing anything about it, so it’s gonna take a while to get on top of it again.’ (Tramper/ trapper, Auckland, male, higher WC knowledge)
  - ‘To get rid of them is the problem. I’ve seen them, they grow out of cliffs, so getting at them, to eradicate them, is a problem.’ (Hunting, Auckland, male, higher WC knowledge)
- The phrase that the ‘seeds seldom survive beyond five years’ also downplayed the seriousness of the issue for some people. This was in part due to confusion around the statement. Some people interpreted the statement that it was the ‘seedlings’ or ‘trees’ that seldom survived beyond five years – it was not obvious to them that the ‘seed’ can lay dormant for a few years and then grow.
  - ‘They can only survive five years. Just leave them six years. Wait ‘til they die.’ (Day walker/ hunter, Auckland, male, lower WC knowledge)
  - ‘If they only last five years, I don’t see the need to worry about it, if the seeds only last five years.’ (Angler, Auckland, male, lower WC knowledge)
  - ‘If seeds seldom survive, why are they growing at 5% each year? Why would there be a problem if they seldom survive? That’s where I was confused. I understand the thing now. It could lay dormant for four years and then it grows.’ (Angler, Auckland, male, lower WC knowledge)

Feedback on ‘need for control’ messages from outdoor recreationists: Replacing with good trees theme

Message: ‘**Replacing wilding conifers with good trees.** Where forests of wilding conifers are removed, they will be replaced with native vegetation or low spread-risk trees.’

This message was useful for people to know - as a secondary message. That is, it was not a message that convinced people that WC need to be controlled, but provided some reassurance that the land would be looked after and not be left to grow other weeds.

Pro:

- Recreationists liked the sentiment that WC would be replaced with ‘native vegetation or low spread-risk trees’.
  - ‘Sounds fantastic.’ (Christchurch)

Cons:

- A few people were skeptical that the replacement would actually happen – given it would require a ‘massive effort’.
  - ‘I think the idea behind it is good, but I think it’s unfeasible.’ (Christchurch)
- One person thought it would not be practical to replace WC with good trees given their (misguided) understanding that WC did not form forests – their misunderstanding was based on their take-out from the message that seeds ‘can be blown many kilometres’.
  - ‘It’s pretty hard to ensure you’re gonna have a forest of wilding conifers if they spread out in the wind – they’re not all gonna be all contained in one paddock.’ (Christchurch)

Considerations:

- Many recreationists were more in favour of ‘native vegetation’ being planted when WC were removed, rather than ‘low spread-risk trees’.
- A Māori recreationist (who exercised Kaitiakitanga) mentioned that ‘restore’ was a better term to use rather than ‘replace’.

Feedback on ‘need for control’ messages from outdoor recreationists: Low value theme

Message: ‘**Wilding conifer forests have minimal or no value.** Unlike orderly commercial forests, where trees are thinned and there’s good road access; wilding conifer forests can be hard to walk through, and the trees can be different species, ages and shapes. All this makes removal difficult, with harvest costs often more than the trees are worth.’

Of those who were more knowledgeable about WC, most were aware that WC forests have minimal/no value. For those who were less knowledgeable about WC, this message answered one of their key questions – on hearing this message they were more convinced that WC need to be controlled.

Pros:

- Most recreationists believed this message.
  - ‘That makes logical sense.’ (Christchurch)
  - ‘Yeah I’ve been to a forest when I was eight, where you could drive through and walk around and everything, then three years ago I went back and you couldn't even walk, you’d need a machete to get through so I can fully believe that. To go through with a bulldozer would be lot of work.’ (Christchurch)
- Recreationists felt this was an important message as it clearly addressed ‘why’ WC forests have little value – a question they needed answering before they could agree that WC are an issue and need to be controlled.
  - ‘I really liked this as it talked about what the forest isn’t and why it’s shit basically, cos it’s hard to remove and harvest is more costly than the trees. That was a really good balance, like you were saying with what they had told us about what it is, why some things are good and this is why it’s bad.’ (Tramper, Auckland, female, lower WC knowledge)
  - ‘The fact that it’s so hard to walk through puts context into why it can be difficult to remove and harvest essentially. I know how log harvesting works. You need big equipment and you need space. If you don’t have space, it doesn’t work.’ (Day walker/ hunter, Auckland, male, lower WC knowledge)
  - ‘It’s good for me to know and that means we need to eradicate them.’ (Angler/ tramper, Auckland, male, higher WC knowledge)
  - ‘I actually quite like the idea of poisoning them.’ (Christchurch)
- The effective phrases in this message were: ‘hard to walk through’, ‘trees can be different species, ages and shapes’ and ‘harvest costs often more than the trees are worth’.

Feedback on 'need for control' messages from outdoor recreationists: Low value theme (continued)

Message: '**Wilding conifer forests have minimal or no value.** Unlike orderly commercial forests, where trees are thinned and there's good road access; wilding conifer forests can be hard to walk through, and the trees can be different species, ages and shapes. All this makes removal difficult, with harvest costs often more than the trees are worth.'

Cons:

- A few recreationists still did not believe that WC could have minimal or no value (even after reading the message). That is, they felt that the trees could still be used for such things as firewood or erosion control in steep terrain.

Considerations:

- Off the back of discussing this message, recreationists felt that the general public needs to be able to identify WC, to gain a first-hand sense of how many WC there are in the landscape.
    - 'People don't see it as big problem because they're used to seeing pine trees. Until you realise that the pine tree shouldn't be there. That's when they think, it used to be tussock.' (Tramper/ trapper, Auckland, male, higher WC knowledge)
- In order to help people identify WC forests/trees, in addition to the description in the message, people suggested that other good indicators of a non-wilding forest is that the trees are planted in rows and the individual trees are straight (as opposed to 'gnarly').
- People felt it would also be useful to clarify via if pine trees are beneficial for erosion control or not. Some people felt WC were beneficial for erosion control, whereas others felt that WC roots are too shallow to provide good erosion control. If these trees are not beneficial for erosion control this would help more people believe that WC are more harmful than beneficial.
    - 'Pine trees… there's so much erosion cause when they get old and fall down they cause scarring and the water gets in them and washes down the mountain. The natives are much more stable and hold the mountain better, I've seen it and read a little bit about it.' (Christchurch, lower WC knowledge)

Feedback on 'need for control' messages from outdoor recreationists: Progress theme

Message: 'We are making progress. We are making good progress with our national efforts to contain and control these weeds – in 2016-19 we protected 3 million hectares of land from wilding spread.'

While this message was deemed to be the least helpful to the general public (in terms of understanding/reinforcing the need for WC control), this was an important message for the recreationists who were more informed on the topic of WC.

Pros:

- Some liked this message the best – especially those that were already aware of the WC issue - they liked that there was progress being made.
  - 'The one I liked most was "We're making progress". I think it's a positive message. That item that was on the news the other night, your ears pricked up and you saw the guys drilling the trees to put the poison in. I've done that and it is effective and you go, it's good to see that someone's doing something. You know they are but to have it proclaimed like that, I think it was really useful.' (Hunter/ tramper/ trapper, Auckland, male, higher WC knowledge)
  - 'It's interesting that it's taken three years to do three million hectares of land as well. It's a feel good message, saying, "We are actually tackling the problem," versus saying, "We're just bringing the problem to you now." It's a good thing to highlight. It's a bit of a feel good message to the public to say, "We are actually trying to tackle this problem but we need your help."' (Tramper, Auckland, male, higher WC knowledge)
  - 'It's a positive message. It's actually a nice story to say, "There's something that we're actually doing". It comes down to getting the message out there.' (Tramper, Auckland, male, higher WC knowledge)
- Some liked the reference to the time period, in terms of providing an indication of how long some of the big WC control operations have been taking place.
  - 'Now I know, cause I was wondering how long it had been a problem for.' (Christchurch)

Cons:

- This message created concern for some people. In terms of why they were just hearing about the WC issue now, when a lot of control work had already been happening over the past few years.
  - 'A positive message is that we're obviously making progress to contain them and that we've protected three million hectares of land. But why are we not hearing about it? I hear a lot of stuff on the news and none of it is about this.' (Hunter, Auckland, male, higher WC knowledge)

Feedback on ‘need for control’ messages from outdoor recreationists: Progress theme (continued)

Message: **‘We are making progress.** We are making good progress with our national efforts to contain and control these weeds - in 2016-19 we protected 3 million hectares of land from wilding spread.’

Cons (continued):

- For most people, ‘3 million hectares’ was difficult to put into context – they needed a different point of reference to be able to comprehend the statement.
  - ‘I think hectares and acres and that sort of thing is all good for farmers and that sort of thing but for people who are out walking in the bush every now and then, a hectare doesn’t mean a hell of a lot. You could describe it by the size of a football field, something that we consider tangible. … Also what is the ratio of the protection? Three million hectares protected from how many hectares?’ (Tramper, Auckland, female, lower WC knowledge)
  - ‘I couldn't understand it - I couldn't visualize that size. (Christchurch).
- One recreationist who could relate to the hectares measurement, felt ‘3 million hectares’ was not believable.
  - ‘I don't believe it, that's like the size of most of the South Island.’ (Christchurch).
- Some recreationists also could not understand how an area could be ‘protected’ given the other fact that the ‘seeds can be blown many kilometres’.
  - ‘I don’t understand how they protect three million hectares from wilding spread. If they blow kilometres, if that’s true, how do they know they’ve protected that area? That’s the bit I don’t get. Do they blast everything or something? If one seed can go four or five kilometres, how do they know that it’s protected?’ (Angler, Auckland, male, lower WC knowledge)

5. Attitudes towards control methods

After seeing the WC programme messages…

- Half of the general public did not agree that aerial boom spraying should be used to control WC
- Conversely, two-fifths agreed with all forms of WC control or didn't mind what is done
- One in ten needing more information or more time to think

Background: The WC control messages provided to research participants

After providing research participants with the 'issue' and 'need for control' messages*, participants were provided with the following description as to how wilding conifers are controlled.

Most wilding conifers can be controlled without the use of herbicide. Manual/mechanical removal can be used for seedling, small trees and trees in accessible areas.
Some wilding conifers need to be controlled by hand-spraying the bark or using drill holes. This is sometimes needed for larger trees, trees in difficult/ unsafe terrain, where felling can reduce grazing, and to leave the sprayed tree standing to shelter growing native plants.
As a last resort, large areas of wilding conifers may need to be controlled via aerial boom spraying. Boom spraying may be used if manual removal is not possible (due to accessibility issues), if hand methods are not cost-effective (e.g. for large, dense forestation), and it can be ensured that there will be little damage to surrounding vegetation.

Participants were then asked: 'Based on what you have read in this survey and any prior knowledge, which statement do you most agree with?'

I agree with all forms of wilding conifer control – so long as they are used appropriately as described above.
I agree with most forms of control including hand-applied herbicide spraying, **but not aerial boom spraying** – even if it means letting wilding conifers take over in some areas.
I only agree with controlling wilding conifers **without the use of herbicide spray** – even if it means letting wilding conifers take over in many areas.
I don't agree with any forms of wilding conifer control – wilding conifers should be left to spread even it if means taking over native ecosystems, productive land, reducing water for hydropower generation and limits our tourism and recreational activities.
No opinion – I don't mind what is done
Don't know – I need more information
Don't know – I need more time to think

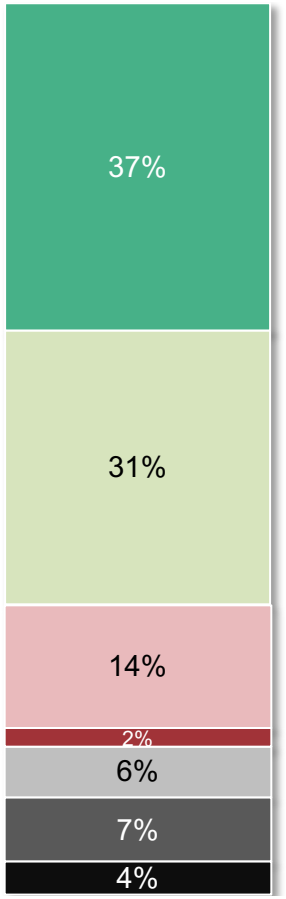
A summary of their responses are shown on the following slide.

* See the sections 3 and 4 for the WC 'issue' and 'need for control' messages shown to respondents.

Around two-fifths (43%) agreed with all forms of WC control (37%) or didn't mind what is done (6%). Almost half did not agree with aerial boom spraying (47%).

Opinions on WC control methods (after all WC programme messaging provided)

Q17. Based on what you have read in this survey and any prior knowledge, which statement do you most agree with?
Base: n=1,346



- 37% I agree with all forms of WC control
- 31% I agree with most forms of control including hand-applied herbicide spraying, but not aerial boom spraying
- 14% I only agree with controlling WCs without the use of herbicide spray
- 2% I don't agree with any forms of WC control
- 6% No opinion – I don't mind what is done
- 7% Don't know – I need more information
- 4% Don't know – I need more time to think

Who was more likely to have each opinion?

Those agreeing with all forms of WC control were more likely to:
- be male (43%)
- be older (aged 65+ years (50%))
- be skiers/snowboarders (63%), pig hunters (62%), mountain bikers (47%), campers (45%), picnickers/sightseers in forest/bush (44%)
- value looking after NZ so overseas visitors want to visit (47%)
- value challenging themselves (45%)
- value looking after the local area (44%)

More likely to:
- value looking after NZ so they can enjoy it (38%)
- value relaxing and unwinding (37%)
- value protecting the environment (35%)
- value New Zealand's different and varied landscapes (35%)
- value looking after NZ so they feel proud to be a New Zealander (35%)

Those against boom spraying (47%)

More likely to: live in a rural area or small community (55%)

More likely to be: from Otago (24%)

More likely to: live in a rural area or small community (7%)

More likely to be:
Asian (12%), not taking part in forest activities (10%), living in a large town (9%), aged 18-29yrs (8%)

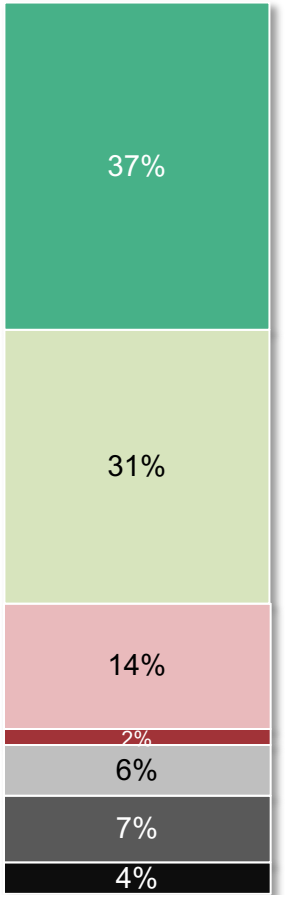
More likely to be: 18-29 yrs (14%), from Wellington (14%), Māori (12%), not taking part in forest activities (10%)

More likely to be: not taking part in forest activities (7%), Māori (6%), female (5%)

Across the differing attitudes, the best ‘issue’ message was consistently ‘ecosystems’, followed by ‘prevent the spread’. The best ‘need for control’ message was ‘we must act now’ – with ‘right tree in the right place’ also important for those who were less favourable towards the use of herbicides.

Control method opinions by best messages

Q17. Based on what you have read in this survey and any prior knowledge, which statement do you most agree with?
Base: n=1,346



	Best ‘issue’ messages		Best 'control' messages	
	Best	2nd Best	Best	2nd Best
I agree with all forms of WC control	Wilding conifers threaten New Zealand’s native ecosystems	Prevent the spread of wilding conifers	We must act now to control wilding conifers	Wilding conifers can be controlled
I agree with most forms of control including hand-applied herbicide spraying, but not aerial boom spraying	Wilding conifers threaten New Zealand’s native ecosystems	Prevent the spread of wilding conifers	We must act now to control wilding conifers	Right tree in the right place
I only agree with controlling WCs without the use of herbicide spray	Wilding conifers threaten New Zealand’s native ecosystems	Prevent the spread of wilding conifers	Right tree in the right place	We must act now to control wilding conifers
I don’t agree with any forms of WC control	None of the above	Wilding conifers threaten New Zealand’s native ecosystems	None of the above – I don’t agree with any of this	We must act now to control wilding conifers
No opinion – I don’t mind what is done	None of the above	Wilding conifers threaten New Zealand’s native ecosystems	None of the above – I don’t really care about this	Don’t know
Don’t know – I need more information	Wilding conifers threaten New Zealand’s native ecosystems	Prevent the spread of wilding conifers	Don’t know	We must act now to control wilding conifers
Don’t know – I need more time to think	None of the above	Wilding conifers threaten New Zealand’s native ecosystems	Don’t know	We must act now to control wilding conifers

Feedback from outdoor recreationists on the ‘control method’ messages: Hand spray or drill message

Message provided: ‘Some wilding conifers need to be controlled by hand-spraying the bark or using drill holes. This is sometimes needed for larger trees, trees in difficult/unsafe terrain, where felling can reduce grazing, and to leave the sprayed tree standing to shelter growing native plants.’

The primary reason why people agree with the herbicide spray/drill control method, is due to the understanding that the herbicide only affects the targeted conifer tree and not the surrounding area. This is not explained in the message but people are generally aware of this.

Pros:

- Recreationists particularly liked the following phrases in the message:
  - ‘for larger trees’ and ‘trees in difficult/unsafe terrain’
  - ‘leave the sprayed tree standing to shelter growing native plants’

Cons:

- Some recreationists had to read the statement many times to understand it.
- Some recreationists did not understand how ‘felling can reduce grazing’. Either they did not understand the terms ‘felling’ or ‘grazing’ and/or had to clarify... ‘does this mean ‘stock’ grazing?’
- Some found it hard to believe that ‘felling can reduce grazing’.
  - ‘I don’t think that felling can reduce grazing – it’s questionable. All the farmers that I’m friends with, if they do fell trees, they’re pretty sure to pile it up in a big pile of rubbish and it’s dealt with or broken down or burnt or whatever. The grazing issue is not overly persuasive.’ (Hunter/ tramper/ trapper, Auckland, male, higher WC knowledge)
  - ‘Normally, if the guys’ grazing the paddock, these things don’t get a chance to establish.’ (Tramper/ trapper, Auckland, male, higher WC knowledge)

Feedback from outdoor recreationists on the ‘control method’ messages: Hand spray or drill message (continued)

Message: ‘Some wilding conifers need to be controlled by hand-spraying the bark or using drill holes. This is sometimes needed for larger trees, trees in difficult/unsafe terrain, where felling can reduce grazing, and to leave the sprayed tree standing to shelter growing native plants.’

Cons (continued):

- Some people weren’t sure what was meant by leaving ‘the sprayed tree standing to shelter growing native plants’.
  - ‘Sprayed tree standing to shelter growing native plants – what does that mean? I have no idea what that last part of the sentence means. I’ve read it so many times and I still don’t understand it.’ (Tramper, Auckland, female, lower WC knowledge)
- Some recreationists understood the statement about leaving ‘the sprayed tree standing to shelter growing native plants’, but felt it contradicted an earlier fact that conifer forests can be unsuitable for native plants for grow. People agreed that **an image would be helpful** to illustrate this happening e.g. an image of a dead standing conifer that had lost its needles, with native plants growing below it.
  - ‘It might sound a bit contradictory when they were saying that the shade of the trees can discourage the growth of native plants and then they’re now saying leave them standing to help kill those native plants. As an independent statement, it makes sense but if you’re comparing it to the other statements they’ve given us as well, it’s a bit confusing.’ (Day walker/ Angler, Auckland, female, lower WC knowledge)
- Those more knowledgeable about WC, found it hard to believe that ‘hand-spraying the bark’ would be effective.
  - ‘Spraying the bark, that’s not effective. You have to get into the conduits that run up the tree and the roots. Spraying the bark wouldn’t do anything.’ (Hunter/ tramper/ trapper, Auckland, male, higher WC knowledge)
  - ‘That’s a bit of a strange one - isn’t it? Not sure that’d be effective.’ (Hunter, Auckland, male, higher WC knowledge)
  - ‘Normally to do that, you’ve gotta get in under the bark cos the bark protects the flow up. That’s why when you ringbark a tree, you cut through the bark and cut through the flow and the transport tubes and the inside of the tree.’ (Tramper/ trapper, Auckland, male, higher WC knowledge)

Feedback from outdoor recreationists on the ‘control method’ messages: Aerial boom spraying message

Message: ‘<u>As a last resort</u>, large areas of wilding conifers may need to be controlled via aerial boom spraying. Boom spraying may be used if manual removal is not possible (due to accessibility issues), if hand methods are not cost-effective (e.g. for large, dense forestation), and it can be ensured that there will be little damage to surrounding vegetation.’

Within the group who were more knowledgeable about WC, most were unaware that aerial boom spraying was being used to control WC (some had heard of the targeted spray methods and most had heard of the manual/mechanical methods). People who supported aerial boom spraying, did so because they felt that only a small area is affected to get rid of a major threat, plus it would only need to be done once.

- ‘It’s okay if you have to damage a small area, as long as your main job is to get rid of that weed.’ (Tramper, Auckland, male, lower WC knowledge)
- ‘I come from a farming background, so I’m quite used to applying herbicide.’ (Tramping/ trapping, Auckland, male, higher WC knowledge)

Pros:

- Most recreationists understood what was meant by ‘aerial boom spraying’ e.g. they described it as spray from an aircraft over a large area.
- The use of the term ‘aerial’ was a helpful indicator as to what was meant by aerial boom spraying.

Cons:

- People questioned how it could be ensured that there was ‘little damage to the surrounding vegetation’ – people were not sure if they could believe this.
  - ‘I found it hard to believe it’ll have no impact on the surrounding vegetation. If that can be proven, then go for it. I think with the animals, the insects, the waterways and other plants, it’s very hard to believe.’ (Tramper, Auckland, female, lower WC knowledge)
  - ‘It says there will be little damage. Who’s measuring the little damage? My version of “little damage” might be totally different to their version of “little damage”.’ (Hunter, Auckland, male, higher WC knowledge)
  - ‘I don't support the boom spraying - it's really bad - it can blow off onto other areas.’ (Christchurch)
  - ‘Boom spraying is too blunt and should not be used.’ (Day walker, Christchurch, male, lower WC knowledge)

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Feedback from outdoor recreationists on the 'control method' messages: Aerial boom spraying message (continued)

Message: 'As a last resort, large areas of wilding conifers may need to be controlled via aerial boom spraying. Boom spraying may be used if manual removal is not possible (due to accessibility issues), if hand methods are not cost-effective (e.g. for large, dense forestation), and it can be ensured that there will be little damage to surrounding vegetation.'

Cons (continued):

- People questioned if the spray was safe for other things in the area e.g. animals, insects, water sources, etc.
  - 'Is it safe? There's a lot more damage than people realise. I find it hard to think that they've developed something that only specifically targets one tree in the forest.' (Angler, Auckland, male, lower WC knowledge)
  - 'It only says it doesn't damage the other vegetation. What about the insects and any animals. Does it pollute waterways and stuff like that? I feel like it needs more clarification.' (Day walks/ angler, Auckland, female, lower WC knowledge)
  - 'One thing I thought of was there's no real room for collateral damage in, say, public areas or public walking areas and that. I wouldn't want to go tramping through Titirangi and have not just the conifers gone but dead areas everywhere as a result of that. That would irritate me but there might be a place for it on private land. Maybe science can show that only conifers will be damaged but at this point, not confident enough in that.' (Day walker/ hunter, Auckland, male, lower WC knowledge)
  - 'Does it damage anything else for many generations after that? It has to be approved. I don't know the track record of successful use overseas. The chemical has to have an approved track record of safety to humans and nature, such as through successful international studies/examples.' (Angler/ tramper, Auckland, male, higher WC knowledge)
  - 'Yeah like boom spraying, nothing will grow there for 25 years after.' (Christchurch)
  - 'Yeah, like how do they ensure minimal damage to surrounding areas? It's bullsh*t.' (Christchurch)
- Some people showed a lack of trust that boom spraying would only be used as a last resort.
  - 'I don't trust the people doing it. Human nature would tell me that the easiest option would be the one chosen. If you've got a flat area, rather than get the team of guys in, it's just so much easier to go and bomb the lot with a helicopter.' (Hunter, Auckland, male, higher WC knowledge)

Feedback from outdoor recreationists on the ‘control method’ messages: Aerial boom spraying message (continued)

Message: ‘<u>As a last resort</u>, large areas of wilding conifers may need to be controlled via aerial boom spraying. Boom spraying may be used if manual removal is not possible (due to accessibility issues), if hand methods are not cost-effective (e.g. for large, dense forestation), and it can be ensured that there will be little damage to surrounding vegetation.’

Cons (continued):

- People also felt that boom spraying was an ‘easy way out’ and that other methods should be used instead. They felt that boom spraying should be used because it is ‘cost-effective’.
  - ‘I don't support [aerial boom spraying], it’s just an easy way out. It doesn’t matter if it’s a last resort, it’s still the same - it’s an easy, cost effective way out for people that don’t give a sh*t.’ (Christchurch)
  - ‘[Aerial boom spraying] is just too hard core, I think. If it’s the easiest pest to control, then why do we have to go to such hard core methods? It’s an easy way out for everybody who’s actually doing it.’ (Day walker, Auckland, female, lower WC knowledge)

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Feedback from outdoor recreationists on the 'control method' messages: Aerial boom spraying message (continued)

Message: 'As a last resort, large areas of wilding conifers may need to be controlled via aerial boom spraying. Boom spraying may be used if manual removal is not possible (due to accessibility issues), if hand methods are not cost-effective (e.g. for large, dense forestation), and it can be ensured that there will be little damage to surrounding vegetation.'

Suggested alternatives to boom spraying (of those who had an opinion)

- When group participants were asked what they would prefer instead of aerial boom spraying, most said they would prefer that more money/time was spent to control areas via manual or (at most) targeted spraying. They did not want to save ecosystems (by controlling WC) while also risking ecosystems.
  - 'I would probably look to expand the manpower and time of [hand spray and drill methods]. It'll probably come at an increased cost and maybe [boom spraying] does have its place on private land or something like that.' (Day walker/ hunter, Auckland, male, lower WC knowledge)
  - 'I think it can be done without the boom. I think it's a bit too much and not necessary. I'm concerned about over spray. The spraying that I've done myself on my own land has always been in a very controlled way. I think if you put in an effort, you can achieve anything. [Poisons] stay in the soil, whereas if you can just take your shirt off, get in there, it's gonna take a lot longer but if you're motivated, it's less invasive. My bush is established, long term native bush, so I'm very careful with what I apply to it. It sounds like a lovely statement but it is employment as well if you can find the right people.' (Tramper/ trapper/ hunter, Auckland, male, higher WC knowledge)
  - 'There's people that love going into the bush so why don't you get them to go in there? Not with mechanical stuff but with a drill and diesel.' (Christchurch)
  - 'If they're gonna put the effort of putting a helicopter up there, why don't they just drop people down to bark spray them?' (Christchurch)
  - '[WC] need to be controlled and eradicated without compromising native ecosystems.' (Tramper, Christchurch, female, lower WC knowledge)
- One more informed recreationist, wondered if a pathogen could be used to target WC in hard to reach areas – away from commercial forests.
  - 'Sometimes in pine plantations, you see where some pathogen's got in. It's some sort of fungus and you'll see the trees have died. You'll see areas within the blocks where they've died. It'd be good to harness to something like that for those inaccessible areas.' (Tramper/ trapper/ hunter, Auckland, male, higher WC knowledge)
- Some people were open to controlled burning as a control method, whereas others were not. Those who disagreed with fire as a method of control were concerned about pollution from the smoke, the risk of the fire spreading, and the damage to everything in the area (e.g. insects, animals, floral, ecosystems, etc.). On the positive, people felt it would avoid the water pollution that was perceived to be an unintended consequence of boom spraying.

Feedback from outdoor recreationists on the ‘control method’ messages: Aerial boom spraying message (continued)

Repercussions from the 1080 debate for WC control

- Some people connected the use of herbicides for WC control, to their beliefs around the negative impacts of 1080 (used to control predators).
  - ‘[It’s hard to support aerial boom spraying] because of the past. I mean the 1080 example is something I thought of. That’s an obvious one.’ (Day walker/ hunter, Auckland, male, lower WC knowledge)
  - ‘This is exactly the same as 1080.’ (Christchurch)
  - ‘I’m more concerned about what’s left after the fact. If it does eradicate the problem specifically, I’m okay for that part. But if does other problems, like 1080 does around the whole area, killing off our animals, well I’m not for it. They were saying that 1080 is healthy, it’s good for you.’ (Hunter/ tramper/ angler, Auckland, male, higher WC knowledge)
  - ‘I’d be all for it if there was actual proof that there’s no damage to native trees or it will not harm the wildlife. I can certainly appreciate that they’d want to try and maximise the amount of area in the shortest period of time; however, for me, there’s just not enough information out there saying this is what the effects are of this and this is the damage that it could cause. We don’t want another 1080 on our hands. We don’t wanna be the green country that pesticides everything either. I’d be concerned around the effects on wildlife, other native trees, flora and fauna. To me it sounds like 1080.’ (Tramper, Auckland, male, higher WC knowledge)
- 1080 is top-of-mind and a big issue for some hunters – they don’t want a similar threat to their recreational activities due to WC control.
  - ‘I come back to 1080. Say I’m in Piha and get a pig – right? It’s had a spray [from WC control]. How are we going to go pig or deer stalking?’ (Hunter/ tramper/ angler, Auckland, male, higher WC knowledge)
  - ‘1080 it’s causing so much damage to the wildlife, it’s messing up my kills and my chance to feed my family.’ (Christchurch, male, lower WC knowledge)

  Although some hunters did comment that WC control spray would not have much impact on their hunting (compared to 1080), given they tended not to hunt in conifer forests, but more so in beech forests or tussocks lands.
- As a result of their past experience with 1080 and their reservations about the use of ‘poisons’, hunters felt the needed for more information on the chemicals used in WC herbicides, the potential impacts and the safeguards in place.
- Furthermore, they felt it was important that this information was provided from an ‘established body’ to avoid mis-information from other sources. Note: there were some reservations about receiving this information from the Environment Protection Agency (EPA).
  - ‘I’d rather an established body say, “This is what we’re doing, this is maybe some of the case subjects that we’ve actually done and some of the results from that.” So we’re not using second-hand information through Google.” (Tramper, Auckland, male, higher WC knowledge)

Feedback from outdoor recreationists on the ‘control method’ messages: Aerial boom spraying message (continued)

Other messages tested with recreationists – to understand if they can help alleviate concerns about WC control

‘Sprays are applied precisely, so we avoid surrounding vegetation or waterways.’

- People found it difficult to believe this statement. People commented that it would be helpful to know more information as to how this is done, such as how the impacts of weather are accounted for (e.g. avoiding wind or big storms that could wash residues into waterways).
  - ‘That’s good if it can be done. But that’s a hard ask when you’re flying over in the air to spray the chemicals. You can take it to a degree but you’re going to get some strays.’ (Day walker/ hunter, Auckland, male, lower WC knowledge)
- Some people also wanted to know what chemical is being used. It was hard for them to have an opinion on their support for spraying without knowing this.
  - ‘I don’t know what they’re using. You say it’s an aerial spray, fine. But what chemicals are in it? We don’t know. The question at the moment is asking would we be quite supportive of an aerial boom? It depends on what’s going to be in that boom.’ (Tramper/ hunter/ angler, Auckland, male, higher WC knowledge)

‘To date, most dense infestations have been controlled by operators using chainsaws and heavy machinery. However, the risk to these people’s safety is high in steep terrain – so we prefer to boom spray these places.’

- ‘People’s safety’ appeared to be a more compelling argument for boom spraying, compared the other message that stated that boom spraying is used when other means ‘are not cost-effective’; however people were still highly concerned about the damage of boom spraying to the surrounding area.
  - ‘It’s good to know all this, but are they letting people know what damage it is doing to surrounding areas?’ (Christchurch)

‘We replace sprayed areas with wanted vegetation – replanting them in natives, low-spread risk commercial forests, or pasture.’

- People felt this was a good thing to know.
- Although people did question if it was possible to plant new vegetation given:
  - the acidic soil (given the earlier message about WC making the soil unsuitable for other plants)
  - the areas that are boom sprayed are done so because it is unsafe for people to work on that land.
    - ‘How can they re-plant it if it’s too dangerous for people to go there in the first place?’ (Christchurch)

Feedback from outdoor recreationists on the 'control method' messages: Aerial boom spraying message (continued)

Other messages tested with recreationists – to understand if they can help alleviate concerns about WC control (continued)

'Only agricultural chemicals approved by the Environmental Protection Authority are used for wilding conifer control.'

- This statement received polarised views – some felt it was reassuring (to have an expert agency looking over it), whereas others, who were aware of the association between 1080 and the EPA, were not reassured.
  - 'EPA validated 1080, it's crap. That makes me angry.' (Hunter, Christchurch, male, lower WC knowledge)
- A few responded to the statement by thinking they needed more information on the chemicals used. They felt that this information needs to be available so that those in the general public who are interested could find out more in order to trust the process.
  - 'I'd like to know exactly the outcome from the actual testing. Have they done the boom? I'd like to know essentially what sort of effects has it had on the land or around the surrounding areas, etc. I think that information is important cos as soon as you put it out there in the media, saying, "We're about to go and blast a whole heap of chemicals all over the South Island or in the North Island," you're going to end up with the greenies going up in the arms. They'll wanna know those answers as well. Unfortunately, government departments, especially with environmental ones, I don't know if they hold a lot of clout, to be honest, with general New Zealanders. Honestly, a lot of the time, they're saying, "This is gonna be good" but then it turns into something else. Then, of course, other problems arise from it, because they haven't actually done their homework first. I think realistically, it comes down to getting that information out there.' (Tramper, Auckland, male, higher WC knowledge)

'Scientists are looking at options for low-spread or sterile trees.'

- Some people wondered if this could be an option - they felt reassured to know that this research was taking place.
  - '[Someone needs to be looking at] developing non-seeding trees.' (Tramper/ angler, Auckland, male, lower WC knowledge)

'We have scientists looking at the spray residues left in needles and the soil, as well as how we can make spraying more efficient.'

- People found this interesting, 'good to hear' and 'crucial', but for some it was not reassuring for the immediate term.
  - 'I like it. They'd probably need to carry on and get to the end of that programme. To know the answers as it might not be possible.' (Day walker/ hunter, Auckland, male, lower WC knowledge)

Feedback from outdoor recreationists on the 'control method' messages: Aerial boom spraying message (continued)

Other messages tested with recreationists – to understand if they can help alleviate concerns about WC control (continued)

'In the Mackenzie Basin – one of our most densely infested areas – we've controlled 2,000 hectares of dense trees in the last 2-3 years – 85 percent controlled with ground crews and mechanical methods, and only 15 percent with boom spraying.'

- Those in Christchurch (who were less informed about WC) were shocked/angry to hear that so much control had already taken place in the Mackenzie Basin.
  - 'Is that a true fact? Why don't we know about it?' (Christchurch)
  - 'The boom spraying makes me angry. Like if they can do 85% mechanically, why can't they do the last 15% mechanically?' (Christchurch)

  Some of this 'anger' appeared due to the perceived risk that they might lose access to the conifer forests that they enjoy for their recreational activities.
  - 'If they get rid of them and there's no pines when I go out to McLeans forest there won't be any forest.' (Christchurch)
- Those more informed about WC were also surprised that that much control had already taken place and had instant questions such as:
  - 'Who's controlling it?'
  - 'Is that true? Is that a fact?
  - 'Do they hand it over to a contractor and say, "Knock yourself out" or is it government controlled?'
  - 'Is it being monitored?' 'Or are people just randomly doing stuff?'

  These people felt reassured when told that there is an official WC programme that has a range of partners (e.g. MPI, DOC, councils) and they undertake a coordinated and monitored approach.
- Some felt the '15 percent' being boom sprayed was relatively high.
  - 'If you extrapolate on that data and say 15% of the 3 million hectares is being boom sprayed, that's huge.' (Christchurch, lower WC knowledge)
- On the contrary, those more informed about WC felt that if boom spraying was a last resort that '15 percent' sounded about right and 'quite reasonable'.
  - 'I think it is quite reasonable. There are some hills that ring the Mackenzie basin, so I'm assuming that's where they're doing the aerial stuff, where it's a bit more inaccessible.' (Tramper/ trapper, Auckland, male, lower WC knowledge)

Is there a difference between what happens on private land and what happens on public land?

- On one hand, recreationists felt okay with boom spraying on private land (as they felt if wouldn't affect the areas they typically visit), whereas on the other hand, they still felt concerned with boom spraying on private land because of the impacts on waterways, stock, etc.

6. General public differences across regions

- The North Island (excluding Waikato) is less likely to be aware or knowledgeable about WC
- The upper South Island and Southland are more likely to be happy with all forms of WC control
- Wellington is least likely to be happy with all forms of WC control
- Otago is least likely to support the use of herbicides
- Waikato and Auckland are more active in WC control

Differences across the North Island (compared to other regions)

Northland – similar to national averages for WC measures

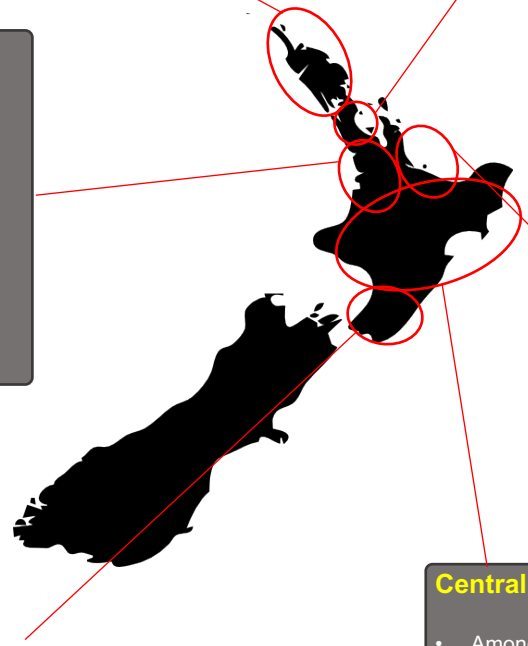
- More likely to be 55 yrs+ 44% (34% national)
- More likely to live in small towns 28% (14% national) and communities 37% (8% national)

Waikato – more knowledgeable and more active in WC control

- More likely to describe their knowledge on WC as 'high' 18% (11% national)
- More likely to believe that WC are 'extremely harmful'/'more harmful than beneficial' 39% (33% national), prior to exposure to the messages.
- Of those who were aware of the phrases for WCs, more had taken part in wilding control on their own land 10% (5% national)
- More likely to be involved in mountain biking, horse riding, river-based activities.
- More likely to live in small towns 30% (14% national) and communities 12% (8% national)
- More likely to be European/NZ European 79% (72% national)

Wellington – more likely to believe WC are beneficial until told otherwise, and need more information on the control methods

- Less likely to believe that WC are 'more harmful than beneficial' 17% (26% national) prior to exposure to the messages. Are similar to other regions after exposure to messages.
- In relation to control methods,
  - they are more likely to say they 'Don't know – I need more information' 14% (7% national)



Auckland – less likely to be aware or believe WC are harmful (even after messaging). Although also more likely to have undertaken wilding control

- Less likely to be aware of WC as a general concept 50% (55% national)
- Less likely to be aware of some of the terms for WC.
- Among those who are aware of unwanted WC, less likely to be aware of the spread of wildings in the region 29% (37% national)
- Less likely to consider WC as 'extremely harmful'/'more harmful than beneficial' both before and after exposure to the messages: Before 28% (33% national), After 57% (65% national)
- Of those who were aware of the phrases for WC, more had taken part in wilding control (11% as part of community group (6% national), and 9% not on own land or with community group (5% national figure
- More likely to be 18-29yrs 27% (22% national) and more likely to be non-European: 5% Pacific people (2% national), 19% Asian (11% national), 10% Other (6% national)

Bay of Plenty – less knowledgeable and more likely to believe WC are beneficial until told otherwise

- More likely to describe their knowledge as 'very low' 51% (38% national)
- More likely to believe that WC are 'more beneficial than harmful' 28% (21% national) before being exposed to the messages. After exposure they are more likely to believe they are 'more harmful than beneficial' 59% (49% national)
- More likely to be European/NZ European 83% (72% national)

Central North Island (Gisborne, Hawkes Bay, Taranaki, Manawatu, Wanganui) – less likely to be aware

- Among those who are aware of WC, less likely to be aware of the spread of wildings in the region 24% (37% national)
- Less likely to describe their knowledge as 'high/very high' 4% (11% national)
- More likely to live in a large town 43% (18% national) and be Maori 40% (19% national)
- More likely to be involved in 'Picnics/sightseeing' and 'Fishing in lakes'

Significance testing based on 90% confidence level.

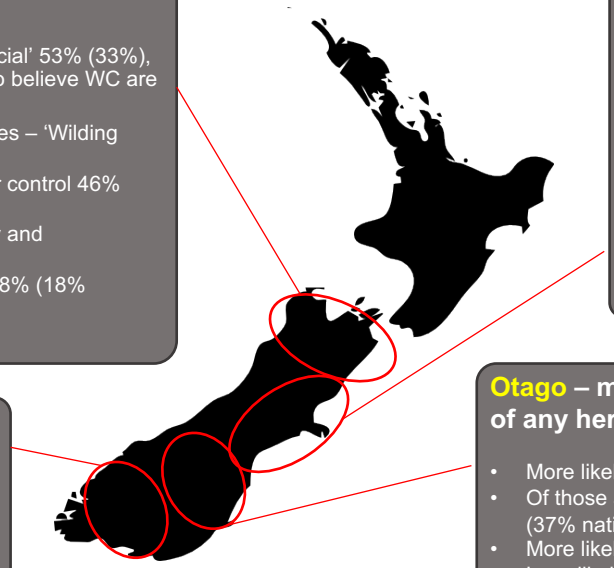
Differences across the South Island (compared to other regions)

Upper South Island (excl West Coast) – more likely to be aware of WC and understand their harm. They are most likely to be happy with all forms of WC control

- More likely to be aware of WC as a general concept 67% (55% national)
- Of those aware of WC, they were also more likely to be aware that they are spread in their region 73% (37% national)
- More likely to be aware of all of the Wilding phrases
- More likely to believe that WC are 'Extremely harmful'/'more harmful than beneficial' 53% (33%), prior to exposure to the messages. After exposure they were even more likely to believe WC are 'extremely harmful'/'more harmful than beneficial' 76% (65% national)
- More likely to have 'heard of' and 'believe/trust' all but one of the 'issue' messages – 'Wilding conifers threaten New Zealand's economy'
- Indicatively (not significantly) more likely to agree with all forms of wilding conifer control 46% (37% national)
- More likely to take part in 'tramping/walking' both with and without overnight stay and 'picnic/sightseeing'
- More likely to be 55+yrs 44% (34% national), more likely to live in a large town 48% (18% national) or outside a town 15% (8% national)
- More likely to be European or NZ European 88% (72% national)

Southland – more likely to be aware of WC and understand their harm. Similar to the upper South Island, are more likely to be happy with all forms of WC control

- More likely to be aware of WC as a general concept 66% (55% national), also more likely to be aware of all of the Wilding phrases
- More likely to believe that WC are 'extremely harmful'/'more harmful than beneficial' 42% (33%)
- More likely to be aware of the 'issue' message 'Prevent the spread of wilding conifers' and 'Wilding conifers threaten New Zealand's native ecosystems'
- More likely to select 'I agree with all forms of wilding conifer control' 46% (37% national)
- More likely to live in a large town 31% (18% national) or outside a town 18% (8% national)



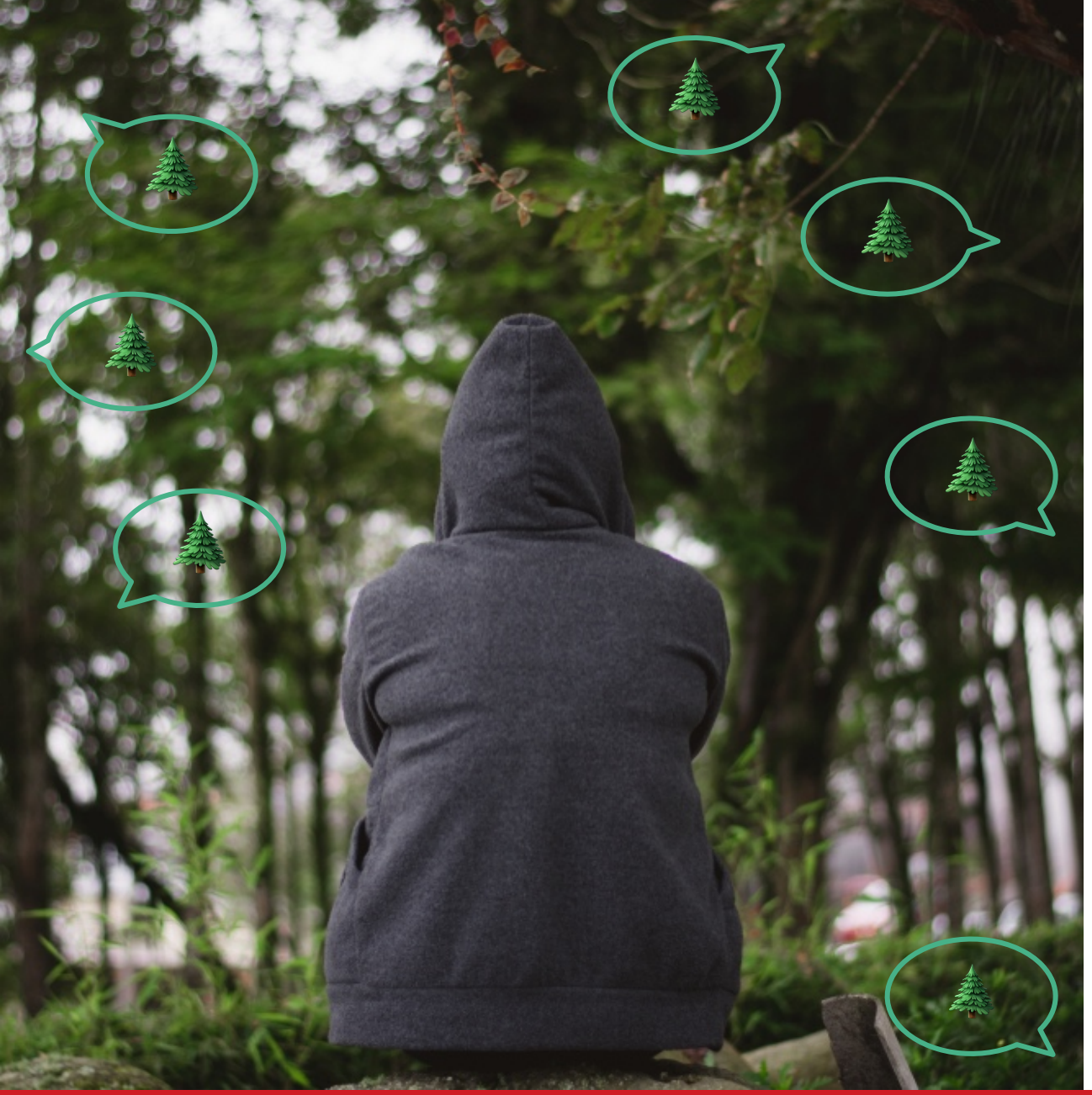
Canterbury – more likely to believe WC are harmful, before and after messaging. Less aware of the general concept compared to the rest of the South Island

- More likely to be aware of the phrase 'Wilding pines' 53% (41% national)
- More likely to believe that WC are 'extremely harmful'/'more harmful than beneficial' 41% (33%), prior to exposure to the messages. After exposure they were even more likely to believe WC are 'extremely harmful'/'more harmful than beneficial' 71% (65% national)
- More likely to have heard of the 'issue' message 'Prevent the spread of wilding conifers'
- Of those who were aware of the phrases for WC, they were less likely to have taken part in wilding control, 'No' 90% (84% national)
- More likely to be European or NZ European 89% (72% national)

Otago – more likely to be aware of WC and most likely to disagree with the use of any herbicide sprays

- More likely to be aware of WC as a general concept 63% (55% national)
- Of those aware of WC, they were also more likely to be aware that they are spread in their region 49% (37% national)
- More likely to be aware of all of the Wilding phrases
- Less likely to describe their knowledge level as 'Low/Very low' 51% (64% national)
- More likely to believe that WC are 'extremely harmful'/'more harmful than beneficial' 41% (33% national), prior to exposure to the messages
- More likely to be aware of the 'issue' message 'Wilding conifers threaten New Zealand's native ecosystems' 33% (27% national) and 'Wilding conifers threaten New Zealand's identity' 27% (20% national)
- More likely to select 'I only agree with controlling wilding conifers without the use of herbicide spray' control method 24% (14% national)
- More likely to take part in mountain biking and skiing/snowboarding, live in a small town 19% (14% national) or outside a town 12% (8% national) and be European or NZ European 89% (72% national)

Significance testing based on 90% confidence



7. Reactions to visuals

- **Visuals that were well received:**
  - Using a helicopter in steep terrain to conduct targeted spraying
- **Visuals that were less effective:**
  - Using a helicopter in flat terrain to conduct targeted spraying
  - Spread of WC forests over alpine areas
  - Concepts that suggested that WC forests could reduce native forests or native birds
- **Implication:** New image territories need to be explored to lead a general public communications campaign. Note: given the effectiveness of the 'native ecosystems' theme, one option might be to illustrate the WC issue through native animals/ plants that are threatened by WC spread

Feedback from outdoor recreationists on the visuals: Helicopter and steep/flat terrain

Useful image

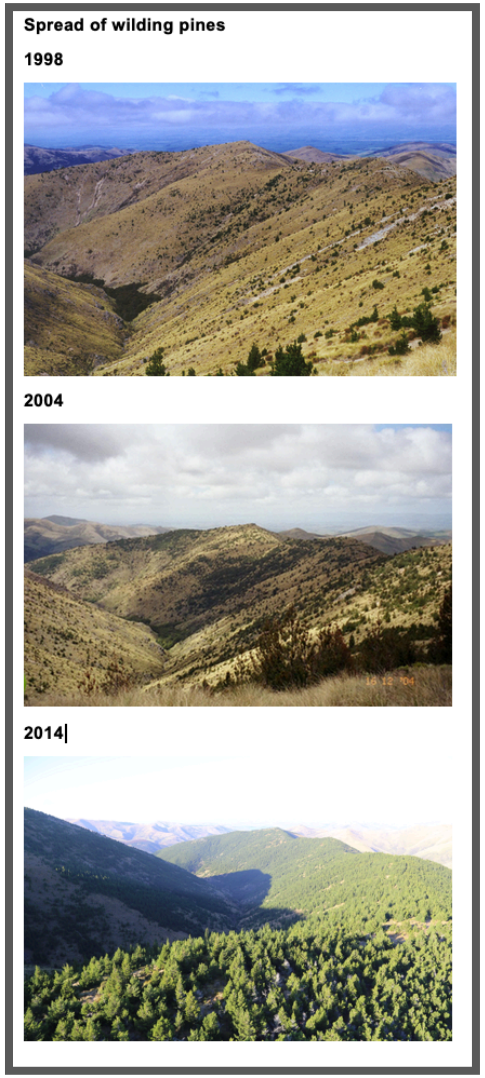
- This image attracted people's attention in a variety of ways: some people thought it looked 'fun', some liked the beautiful landscape and/or people were interested in what the helicopter was doing.
  - 'I think it's an effective image, not least because the grand perspective shows the beauty. It also shows agriculture.' (Tramper/ trapper/ hunter, Auckland, male, higher WC knowledge)
- This image helped recreationists understand a number of things including how it is possible:
  - to conduct targeted spraying in hard to reach areas
  - for a WC to take root in a place where they wouldn't expect trees to be.
- This image would be further improved if the 'spray stick' held by the person was more obvious.

Useful but criticised

This image successfully demonstrated targeted spraying, but the scenario was seen to lack sensibility.

- People liked how this image clearly illustrated a person undertaking targeted spraying on a WC (this was clearer in this image than in the other helicopter image). Note: most people were not aware that targeted spraying could be done this way until seeing these helicopter images.
- However, people felt that spraying a tree on flat-ish land, near a road, was not an effective use of money or resources.
  - 'I didn't realise they meant a helicopter, surely they could set something up that's not $1000 an hour? Yeah in high places but not in an area you could just walk to like that, you could obviously just drive to it.' (Christchurch)

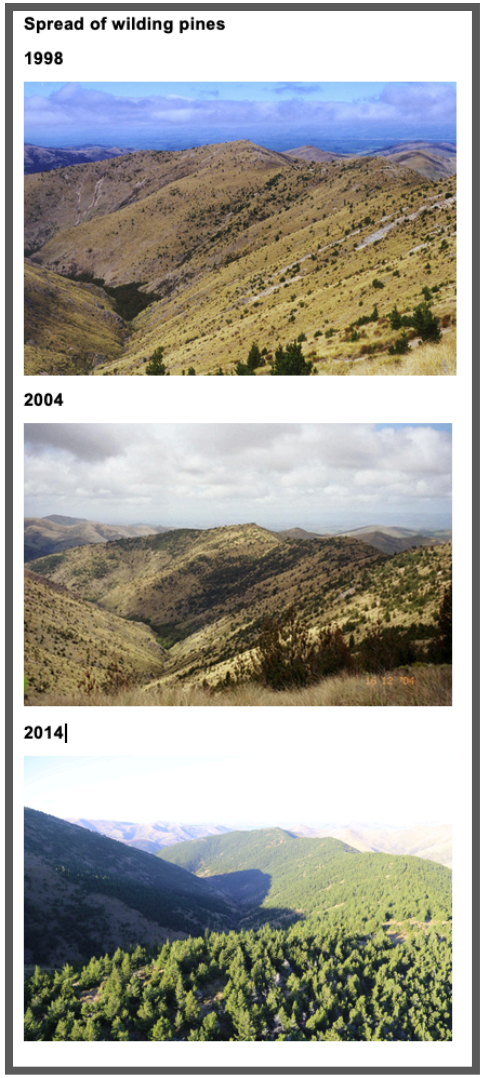
Feedback from outdoor recreationists on the visuals: Spread



Misinterpreted images - affinity is with forests rather than alpine/tussock terrain

- Images showing the spread of WC over the landscape over time, did not work as intended. Most outdoor recreationists preferred the 'greener-looking' landscapes of the WC forests. These recreationists did not like the look of the alpine landscapes – stating the hills looked bare, unhealthy, etc. For some, these images were a reason to disagree that WC are a pest/issue.
  - 'They do make the country greener looking.' (Tramper, Auckland, male, higher WC knowledge)
  - 'I like 2017 it looks more picturesque. The first one looks barren.' (Christchurch)
  - 'The later images look green, it's New Zealand… it shows how the pine grows, how cool.' (Tramper, Auckland, female, lower WC knowledge)
- However, there was a minority who could see the beauty or 'correctness' of the earlier images in the time series.
  - 'I hate that. This is horrible to me. With the two images together, 2017 looks appalling to me. If that's the natural situation, then that's how I want it. Pretty is all very well, but we're talking about the health of the system. The bottom one looks like Switzerland, we live in Aotearoa.' (Tramping/ trapping/ hunting, Auckland, male, higher WC knowledge)
  - 'There are these grassy areas around the rivers in the South Island and it is very pretty. I wouldn't want to see the pines there.' (Hunting, Auckland, male, higher WC knowledge)

Feedback from outdoor recreationists on the visuals: Spread (continued)



Continued:

- On further discussion of the images, people generally agreed that the images demonstrated how quickly WC can spread, but still overall, the fully forested images were preferred.
  - 'The photos are very strong evidence of the rapid growth.' (Tramper/ angler, Auckland, male, lower WC knowledge)
  - 'That's crazy! That's just 16 years and it basically looks like a forest after 16 years. It's all over that mountain range.' (Day walker, Auckland, female, lower WC knowledge)

- As a result, people felt a real disconnect between understanding that WC were harmful but liking the images of the WC forests. This suggests that these images should not lead a communications campaign with the general public, but could be useful in other contexts.
  - 'This [later] one looks better, but when we come to know about the facts, it does not look good.' (Tramper, Auckland, male, lower WC knowledge)
  - 'Yeah, it depends on whether you think you've got a problem or not. If you think you've got a problem, it spreads pretty quickly [looking at these images]; but you could be quite happy with it in 2014 [in the set of 3 images] if you haven't got a problem.' (Tramper/ trapper, Auckland, male, higher WC knowledge)

Feedback from outdoor recreationists on the visuals: Ruapehu

This:

Or this:

Concept did not work as intended with outdoor recreationists

It was explained in the focus group that these images were a mock-up concept to show what Mount Ruapehu could look like if WC were not controlled.

However, even with an iconic landscape that people might have more affinity with (i.e. Mount Ruapehu), people still preferred the look of the forested/greener image.

- 'I think it's the same thing as before; the bottom one, to me, still looks good.' (Day walker/ fishing, Auckland, female, lower WC knowledge)
- 'NZ always says "100% pure green" and the bottom photo is green but the top photo isn't.' (Christchurch)

Some people questioned if WC could grow in the snow – some thought they wouldn't and some felt they could.

- 'You're not going to get pine trees growing up above the snow line the central plateau in Ruapehu. It's too cold for them to grow there. They just don't grow that high on the mountain. To try and pretend that they'll take over Ruapehu, it just wouldn't happen.' (Tramper/ trapper, Auckland, male, higher WC knowledge)

Encouragingly, people did like to hear that there has been WC control on the central plateau for many years, via volunteer groups, using manual control methods. For example, one person responded:

- 'That's tangible evidence, that what's been proposed actually works.' (Day walker/ hunter, Auckland, male, lower WC knowledge)

Feedback from outdoor recreationists on the visuals: Native vs pine forest

New Zealand:

Not New Zealand:

Concept did not work as intended with outdoor recreationists

The combination of these two images did not work to illustrate the threat of WC for two key reasons: firstly recreationists have an affinity with pine forests (or at least a variety of forest experiences) and secondly they felt that pine forests would not replace native forests.

Some people felt that the image of the pine forest was misrepresented i.e. made to look desolate and unattractive, whereas their experiences in pine forests were more pleasurable.

- 'I've seen the bottom picture in real life and it's beautiful, they've manipulated it to look like a pest.' (Christchurch)

A few suggested that the second image was not a WC forest, as the branches looked pruned and the trees were too 'uniform'.

- 'I don't think that looks like a wilding tree forest, they're all very uniform in the photo.' (Christchurch)
- 'A tree in the photo has been pruned… hahaha.' (Christchurch)

However, people did point out that the second image was a good illustration of how WC forests 'form a closed canopy and acidify the soil'.

- 'What I do see is, yes it's pine, but it's desolate underneath, there's nothing else growing.' (Christchurch)

Preferred image of WC forest:
This image was preferred as a representation of a WC forest - it was seen as 'not so dramatic' and 'real'.

Feedback from outdoor recreationists on the visuals: Native birds

Concept did not work as intended with outdoor recreationists

The combination of these images did not work to illustrate the threat of WC, given people's understanding that WC forests would not replace native forests i.e. the spread of WC forests would not reduce the number of native birds.

- 'Isn't this too extreme though? Are we gonna have no native birds?' (Christchurch)

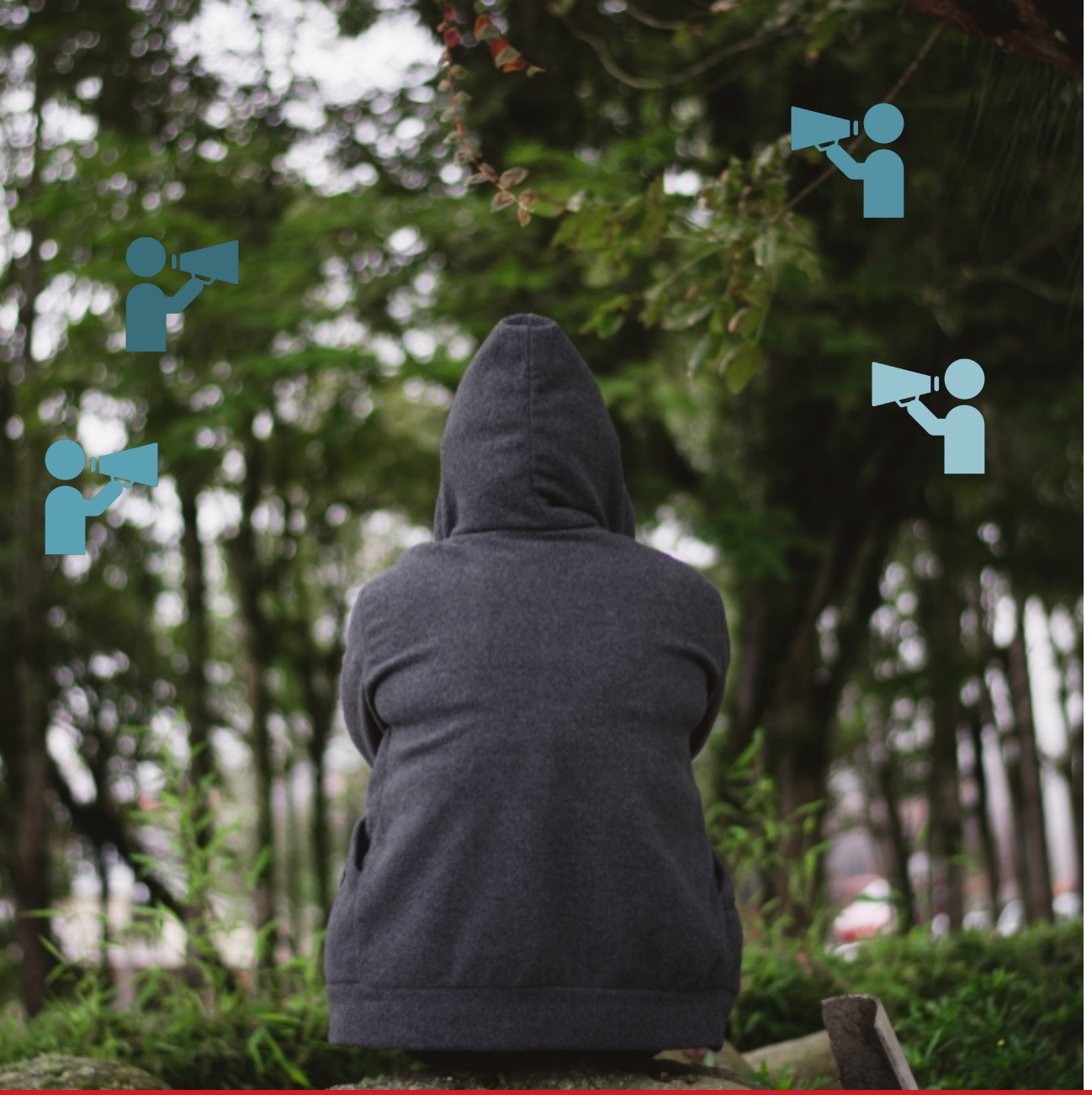
People do want visuals of WC and spread maps to aid their understanding

To aid understanding, people want to see maps illustrating the spread of WC

- Most people said they would find it helpful to see a map showing WC populations and/or their spread over time.
  - ‘Especially if you then said “this is the 5% growth you’ll have in a year” and have it on a map. Or have like a time lapse online where you can scroll through and see what it will be like in 20 years.’ (Christchurch)

To aid understanding, people want to see exemplary image/s of WC trees

- Most people felt they knew or could vaguely work out what a wilding pine looks like – but they felt they needed confirmation, with images being a useful way to illustrate this.
  - ‘What do the weeds look like? Like, show me so I can look for it.’ (Christchurch, lower WC knowledge)
  - ‘Oh, it does look like a Christmas tree.’ (Christchurch, lower WC knowledge)
- Some people also had questions around how to distinguish a commercial pine from a wilding pine – images may also be a useful way to illustrate this. This will also help people understand the extent of the issue as they look around their own environement.



8. Ideal messenger

- DOC was seen as an ideal champion of WC messages
- Links to expert/scientific sources of information on WC would be anticipated/expected/useful/ important
- To date, people had mostly heard about WC from TV, newspapers and word of mouth

DOC was seen as an ideal champion of WC messages

Where should information come from?

- DOC was (overwhelmingly) seen as the expert and champion of conservation initiatives; as a result recreationists said they would expect, and trust, WC information from DOC. Some people also noted that DOC might provide a link to a dedicated website on WC.
  - 'I'd believe it from DOC.' (Christchurch)
  - 'When you think, "conservation", you naturally think DOC, so maybe even a centralised location that may have a link from DOC and MPI websites saying, "If you want to know more about this, go here." (Tramper, Auckland, male, higher WC knowledge)
  - 'You do have to place your faith in some sort of agency who you accept or believe is only in place to endeavour to ensure the best outcome for the ecosystem. I know DOC gets a lot of stick but I believe they're overriding motivation is to protect the ecosystem.' (Tramper/ trapper/ hunter, Auckland, male, higher WC knowledge)
  - 'If it's made a government issue whenever money gets tight this will be the thing that gets chopped very quickly, if it's with DOC they'll keep it up, but not the government.' (Christchurch)

- The general public suggested that they would expect to see or hear information about WC in the following places:
  - 'DOC information boards before you go on a tramp'
  - 'DOC website'
  - 'Ministry for Primary Industries web sources'
  - 'Regional council'
  - 'Social media – Facebook'
  - EPA (or 'Agricultural Chemicals Board') for specific information on the chemicals used in the WC herbicides: 'If you went to DOC looking for it, they should have a link through to the agricultural chemicals board, cos that's their function'.

DOC was seen as an ideal champion of WC messages

Where should information come from? (continued)

- One Māori hunter commented that he doesn't really trust any organisation, but he would trust a good explanation 'of the science'.
  - 'I can't really say if I trust DOC or anybody, unless of course I have to read and make up my own mind. They're no different and they aren't efficient intelligence, unfortunately. They're paid to do a job. I see the results and from there, we can work through it. It's just a formula. That's all it is. It's only a bit of science. Good science but you get a result. You need to lead by example, or it would be followed by an explanation that gets you into trouble.' (Tramper/ hunter/ angler, Auckland, male, higher WC knowledge)

- One person commented that they would trust the information if it came from the forestry industry.
  - 'I'd trust it if it came from the forestry industry themselves, calling out like, "We started off with the right tree in the right place but now look at the other impacts. This is the efforts that we're doing in this space, help us on the journey," or whatever it may be.' (Day walker/ hunter, Auckland, male, lower WC knowledge)

Where had people heard information about WC?

- Newspapers
- TV news
- Word of mouth
- Country Calendar

9. Personal responsibility: current action and openness

- One in six (16%) of New Zealanders had undertaken some form of WC control in the last 12 months
- Recreationists suggested a number of ways that they could help out with WC control
- Two barriers to undertaking WC control in public areas are: lack of confidence in identifying a WC and the risk that other people will take offence (due to low public awareness)

People visualise DOC and councils leading WC control action, but see their own role too. People are taking part in WC control and others are willing to start.

Who should be responsible for leading a solution?

In the focus groups we explored who should be responsible for the solution to WC issues. People commented that DOC would be a good lead for this work, with councils also implementing actions in their local communities. DOC was seen as 'the expert' on conservation initiatives and trusted for this type of role.

How could recreationists take part in WC control?

Some recreationists were open to taking part in WC control. They had a range of suggestions as to how they might do this, including:

1. controlling small WC trees as they see them. However, some recreationists did have reservations about cutting down or pulling out WC on public land, as they felt the general public had a lack of knowledge on the WC issue and might take offence at their action (i.e. lack of social license).
    - 'I've been down the South Island and we're encouraged, every time we see pine, if it's small enough, rip it out. If not, we're to locate it on a map and go take a slasher and whack it out. That was 20 years ago.' (Hunter, Auckland, male, higher WC knowledge)
    - 'I've done the same, you see one and if you've got your hatchet with you or even a knife, get rid of it. Take action when you can.' (Tramper/ trapper/ hunter, Auckland, male, higher WC knowledge)
2. reporting WC sightings: People wanted more information on how they could do this.
3. being aware of and then taking part via volunteer groups
4. via community groups they were already with (including youth groups such as Scouts)
5. via Iwi: 'Involve the Iwi because they will take care of it – it's their backyard.' (Christchurch)
6. via corporate volunteer days
7. via university volunteer groups: 'I think university is definitely a place where you could gain a lot of traction for this sort of thing if you spread the message. There are lots of groups at uni that could organise volunteers and stuff like that. People are really keen to get involved in a crusade.' (Day walker/ fishing, Auckland, female, lower WC knowledge)

Supporting quantitative findings:

Based on the general public survey, **16%** of New Zealanders had undertaken WC control in the last 12 months (they were more likely to be male and/or younger). Of these:

- 6% had done so as part of a community group
- 5% on their own land
- 5% under other circumstances

People are taking part in WC control and others are willing to start. But there is a need for more personal and public knowledge on WC.

How could recreationists take part? (continued)

- To be able to undertake WC control measures themselves, two key barriers were raised by recreationists, i.e.:
  - some people questioned how they would identify an unwanted WC (that could be cut down or pulled out) compared to a valued conifer (that someone wouldn't want removed).
  - some recreationists had reservations about removing a WC on public land, as they felt most people lacked knowledge on the WC issue and might take offence at their action (i.e. they felt a lack of social license).

    'My question is if there a lot of uneducated people out there, and I'm walking on a track and I see a pine, if I go and rip it out, would I get challenged for "that's a growing plant!?" In actual fact, it's a weed. It's a bit like the possums. I will run over every possum I can find and yet other people see them on TV in the Toyota advert and think they're cute. They're not.' (Hunter, Auckland, male, higher WC knowledge)

- Recreationists also mentioned that they could simply help spread the word that WC are harmful. They felt that the general public needed to be made aware of the WC issue and encouraged to remove WC if they saw them.
  - 'Education's probably the biggest thing for doing it. Being aware is equally as important.' (Day walker/ hunter, Auckland, male, lower WC knowledge)
  - 'Most people don't even know what these trees even look like. They could walk past half a dozen of them and not pick one out. If there was actually a method for getting into the schools or get out there in the public saying, "This is what we should be looking at. If you see one of these, pluck it out."' (Tramper, Auckland male, higher WC knowledge)

10. Impact of WC: on personal values and activities

- The general public have a strong affinity with protecting native plants and animals – even if they don't get out into nature themselves
- Outdoor recreationists find it hard to see how the spread of WC will impact their outdoor activities – but they still perceive WC to be harmful
- Some outdoor recreationists value having a wide range of trees/forests (both native and non-native) for their outdoor activities
- Because people care about the environment and protecting native plants and animals, they questioned why they hadn't heard about WC earlier – especially if WC are such a big threat

Outdoor recreationists found it hard to see how the spread of WC would impact their own outdoor activities

Can city-based outdoor recreationists see WC impacting their activities?

In the focus groups we explored whether city-based outdoor recreationists could relate the harm of WC to their own activities, in order to see if this could be an option for a communications territory. We discussed what recreationists valued about their activities, then the WC issue and then revisited potential impacts.

Outdoor recreationists found it difficult to relate the WC issue to their enjoyment of the outdoors; for a number of reasons: they weren't used to seeing a tree as an issue, they hadn't noticed WC in their area, they enjoyed NZ's varied forests (e.g. native forests as well as conifer forests), and/or they didn't feel that the environments they enjoy (e.g. native bush) would be taken over by WC. They ultimately struggled to see the impact of wilding conifers on their own activities.

- 'Wilding pines won't affect my bush walking experience because they can't establish in dense native bush. It won't out-compete the native forest.' (Tramper/ trapper, Auckland, female, higher WC knowledge)
- 'I love pine trees. It would be weird not having them. One of my favourite things about Rapaki is the big pine trees at the start I love the smell.' (Christchurch, female, lower WC knowledge)
- '[With pine forests] you've got that nice smell, as you walk through the bush and the ambience of being in the bush. It does have some benefits.' (Angler/ tramper, Auckland, male, higher WC knowledge)
- 'I enjoy the variety of bush, the West Coast is so different to what we have here, then compared to Stewart Island, there can be beautiful pine forests.' (Christchurch, lower WC knowledge)
- 'For me, I've been to many bush walks but I don't see many conifer trees.' (Tramper, Auckland, male, lower WC knowledge)
- 'When I go to Taupo and the lakes, I haven't seen many of them there.' (Angler, Auckland, male, lower WC knowledge)
- 'Even from a hunting perspective – no.' (Christchurch)

Note: that the lack of connection between the spread of WC and impact on their activities, did not diminish recreationists' perception that WC are harmful.

Only one more informed tramper did comment that the spread of WC would affect his tramping when he was above the native tree line in alpine areas.

- "It does affect tramping because once you go above the bush line, then it's often where you get into the tussock country in the South Island or central North Island, that's where you see the problem. If you don't go in there, you won't see it but that's where I noticed it was going. The tussock country, I quite like cos you get nice views and those could potentially disappear completely.' (Tramper/ trapper, Auckland, male, higher WC knowledge)

Some outdoor recreationists value having a wide range of trees/forests in New Zealand – both native and non-native

Native trees versus other trees

Outdoor recreationists valued native trees, as well as having a mix of native and non-native trees in New Zealand.

- Some people like having access to conifer forests (as part of their mix of forest experiences). These people (who generally had lower knowledge of WC) didn't really distinguish between maintained conifer forests and wilding conifer forests. (Note: They might value WC forests less if they experienced one.)
- Some people preferred native bush (especially those who were more knowledgeable about WC).
  - 'That's what makes New Zealand unique, is the forest.' (Tramper/ trapper, Auckland, male, higher WC knowledge)
  - 'Native trees form our identity of New Zealand.' (Tramper/ angler, Auckland, male, higher WC knowledge)
  - 'One's a mono-culture, basically pine trees, which isn't very interesting at all and the other one's diversity and that's what it's all about when you go for a walk in the bush. The Auckland Council, they're trying to persuade people that you can substitute the pine plantations for the Waitakeres. It's a completely different experience.' (Hunter, Auckland, male, higher WC knowledge)
  - 'The native forest is the attachment you have with the past, as you know it and as you hope it was. You revel in what it was and you were still part of it, especially when you're in heavy natives where people aren't going. It's fantastic.' (Tramper/ trapper, Auckland, male, higher WC knowledge)

Some were aware of other pest trees

In the focus groups some recreationists were aware that wattle trees were pest trees and had been involved in volunteer activities to control them.

Relevant quantitative findings:

Values of the general public

Interestingly, the general public quantitative research found that 'protecting the environment' and 'protecting native plants and animals' were important for most of New Zealanders, along with 'looking after NZ for future generations'; more so than the importance of 'having fun', 'exercising', 'relaxing' or 'being out in nature' (see appendix for chart).

These findings suggest that New Zealanders have a strong affinity with protecting native plants and animals – even if they don't feel the need to get out into nature themselves.

Because people care about the environment, native plants and animals, they questioned why they hadn't heard about WC earlier – especially if WC are such a big threat

Why have we not heard of this before if it is such a big threat?

People questioned why they hadn't heard about the threat of WC earlier. This either made them feel uncomfortable that control work was taking place without their knowledge and/or they questioned the extent of the threat. The later was compounded by their understanding that pine trees have been growing in New Zealand for a long time i.e. so why are they suddenly a threat now?

- 'Well, if you take this as true, it does sound a little bit scary. This is a significant threat but I think it's hard to get past that this is the first time I've really seen it or heard it, whereas you see a lot of these sorts of ideas around the place, like the rubbish and the over-fishing or at least I have anyway. I see them as really important, but it's just the first time I've encountered this idea.' (Day walker/ Angler, Auckland, female, lower WC knowledge)
- 'We've been growing pines in this country since the second World War. Are they that big a problem? They haven't spread in 80 years or a 100 years - have they?' (Hunter, Auckland, male, higher WC knowledge)
- 'Surely we would have heard it by now if it's such a big deal.' (Christchurch)
- 'How long has this being a problem?' (Christchurch)
- 'How, if they've done 3 million hectares, how we haven't heard about it?' (Christchurch)

Many recreationists were interested in the WC topic, wanted more information, and felt it was important to inform the wider community sooner rather than later.

- 'I agree we have the right to know what they're doing, like how they're spending their money. Like you see them get all this money but where does it go to? As a taxpayer you want to know where your money is going, like up until tonight I didn't know about any of this.' (Christchurch)
- 'Inform the nation, educate the people, involve us in the outcome.' (Tramper/ Angler, Christchurch, Māori, male, lower WC knowledge)
- 'I think if they did throw it out there and communicated that this is why we're chopping them down and this is how much we've done, it would give us a bit of an idea.' (Christchurch)
- 'There needs to be more public awareness and education.' (Day walker, Auckland, male, lower WC knowledge)
- 'You need to promote and spread the word to the public.' (Day walker/ angler, Auckland, female, lower WC knowledge)

CONCLUSIONS & IMPLICATIONS

TheNavigators

Conclusion

To build on the wilding conifer (WC) control efforts to date, the WC programme is at a point where it requires greater community engagement. To enable community engagement, programme stakeholders, decision-makers and communicators need to place the public voice at the centre of the conversation. By understanding New Zealanders' values, perspectives and questions, the programme can tailor communications with the aim of gaining trust and ultimately building social license. Effective communications have the ability to not only build awareness and support for the issue, but also to mitigate negative impacts/consequences in the public arena amongst those who might be most likely to speak out and/or agitate.

The general public is growing more aware of the existence of WC. However, their self-professed knowledge on WC is low, with most New Zealanders not agreeing that WC are 'more harmful than beneficial'. Furthermore, most New Zealanders do not support the use of aerial boom spraying. The key concern with aerial boom spraying is the perceived negative impacts on nearby vegetation, animals, insects, water sources, soil, etc. People find it difficult to understand how these other natural entities would not be affected. Some likened the use of aerial boom spraying to the perceived negative consequences from 1080 poison.

The good news is that when the public receive messages on the WC issue and the need for WC control to take place now, they are much more likely to agree that WC are more harmful than beneficial. And encouragingly, most of the public are in favour of manual, mechanical or targeted herbicide application to control WC. However, even after messaging, the use of aerial boom spraying does remain a contentious point.

The key task at present is to increase the general public's awareness of the issue with WC and the need for WC control, as well as increasing their ability to identify WC in the environment so that they can see the impact for themselves. The message territory that is most likely to gain people's attention and support for WC control, is the impact WC have on native ecosystems. Protecting native plants, animals and the environment is a key value for most New Zealanders, whether they are recreationally active in the outdoors or not. The most effective messages to gain people's agreement for the need for control are the 'we must act now' and 'right tree in the right place' messages.

The double-edged sword with regards to the public's strong value of 'native ecosystems is that they're also anxious about the use of non-targeted applications of herbicide (in particular aerial boom spraying). The public's concern about the use of aerial boom spraying is a potential threat to the programme from a public relations perspective, and so it's prudent that the programme ensures everything possible is done to provide clear, detailed and honest information for those who seek further facts. Specifically people want to understand how sprays are 'applied precisely to avoid surrounding vegetation and waterways', the impacts on animals and insects in the sprayed area, what chemicals are used and the impacts of spray residues left in needles and the soil. The public needs reassurance that boom spraying is only used as a last resort, that boom spraying is not used as an 'easy way out' and not used because it is more 'cost-effective for large, dense forests'. The risk to people's safety in steep terrain is potentially a more compelling reason for boom spraying, but it needs more explanation so that the general public can understand and agree with this. The public also needs reassurance that there is an organisation overseeing, coordinating and monitoring the boom spraying of WC.

The following pages provide direction for a general public communications plan, based on the research.

Implications for communications planning

As described in the research conclusions, now is an ideal time to increase WC messaging to the general public, given that many New Zealanders are becoming aware of the WC concept/terms, but are still relatively unknowledgeable on the topic. Providing the right messages in the near term will help build the social license, providing an ideal platform for ongoing WC control actions by government, landowners and individuals.

Below is a summary of the recommendations for communication message territories, message wording, targeting options, image considerations and the lead messenger. Please note that there may be other options or considerations in developing the communications strategy that are not covered in these recommendations. That is, this piece of research just provides a base level of understanding created from the messages and images tested in this study.

Message territories

The general public need not one but a range of messages to understand the WC issue, address their resulting questions, and ultimately gain their agreement on the need for WC control. They need to know **what** the issue is, **why** WC need to be controlled and **how** they are going to be controlled. Recommendations for how to explain each piece of information to the general public are summarised below:

1. **To introduce the general public to the WC issue:**
   The key theme that will attract people's attention is the **threat of WC to native ecosystems** (as opposed to the threat to the economy or to New Zealand's identity) i.e:
   - **'Wilding conifers threaten New Zealand's native ecosystems.** Once established, wilding conifers form a closed canopy of shade and acidify the soil, making it unsuitable for the native plants and animals that rely on these'.

   The 'native ecosystems' message should be paired with the message that **WC spread rapidly and grow fast** i.e:
   - '**Prevent the spread of wilding conifers:** Wilding conifers already affect 6% of New Zealand and are spreading by 5% each year. Conifer seeds can be blown many kilometres and have spread into farmland, the high country and conservation land.' (Note: edits are needed so that the general public can relate more easily to this message – see later section.)

   Note: for messaging directed at outdoor recreationists, the research suggests it will not be advantageous to imply that WC have an impact on their activities – most do not see a direct link.

Implications for communications planning

2. **To explain the need for WC control:**
   Describe **why there is a need to act now** as well as the **right tree in the right place** philosophy (which is already building equity):
   - '**We must act now to control wilding conifers.** Delays in treatment will quickly put the costs beyond our reach. One year's delay and infestations can cost 30% more to control.' (Note: edits are needed to replace the percentage figure in this statement with a more relatable figure)
   - '**Right tree in the right place.** Conifers offer shelter and opportunities for recreation and income, but left to spread they become a problem for farmland, native ecosystems and water catchments.'

   As secondary messages, the following are also needed in order for some people to confidently agree with the need for WC control:
   - '**Replacing wilding conifers with good trees.** Where forests of wilding conifers are removed, they will be replaced with native vegetation or low spread-risk trees.' (Note: this statement could also address the concerns of those who still see WC as beneficial after reading the messages, e.g. accounting for their concerns about the loss of oxygen and erosion control – see slide 15 for verbatim responses)
   - '**Wilding conifer forests have minimal or no value.** Unlike orderly commercial forests, where trees are thinned and there's good road access; wilding conifer forests can be hard to walk through, and the trees can be different species, ages and shapes. All this makes removal difficult, with harvest costs often more than the trees are worth.'
   - '**We are making progress.** We are making good progress with our national efforts to contain and control these weeds – in 2016-19 we protected 3 million hectares of land from wilding spread.'

   Avoid using the following message if possible – it creates conflicting information that's detrimental to the core message:
   - '**Wilding conifers can be controlled.** Wilding conifers are one of New Zealand's easiest weed problems to deal with. Their seedlings are easily spotted and seeds seldom survive in the soil beyond five years.'

3. **To explain how WC are controlled**:
   Most people agree with **manual/mechanical removal** – this is a good message to deliver:
   - **Most wilding conifers can be controlled without the use of herbicide.** Manual/mechanical removal can be used for seedlings, small trees and trees in accessible areas.

   Half of New Zealanders do not agree with treating WC via aerial boom spraying. If messages are going to include descriptions of the targeted or aerial boom spraying methods, these messages need to also **address the public's key questions** on this topic:
   - Exactly what chemicals are used? Have the chemicals been tested?
   - What impact do these chemicals have on the plants, insects, animals and waterways in the area?
   - What processes are used to ensure that the spray from a boom has 'little impact on the surrounding vegetation'?
   - Is there an organisation that is overseeing, coordinating and monitoring the boom spraying of WC?

Implications for communications planning

Wording/phrasing of messages

General note relevant to all messages

Consider replacing ‘wilding conifers’ with ‘wilding pines’ given that wilding pines is the preferred, more commonly used and more understood term.

Messages tested to communicate ‘the issue’

The messages that were tested in the qualitative research are listed below and on the next page. The words/phrases in blue worked well with the general public, while those in yellow did not work well. For those that didn’t work so well, rationales and/or suggested revisions are provided in the Detailed Findings section.

Prevent the spread of wilding conifers. Wilding conifers already affect 6% of New Zealand and are spreading by 5% each year. Conifer seeds can be blown many kilometres and have spread into farmland, the high country and conservation land.*
Wilding conifers threaten New Zealand’s native ecosystems. Once established, wilding conifers form a closed canopy of shade and acidify the soil, making it unsuitable for the native plants and animals that rely on these.
Wilding conifers threaten New Zealand’s economy. Wilding conifers significantly reduce the land available for stock grazing and the water available for farm irrigation and hydropower generation.
Wilding conifers threaten New Zealand’s identity. Wilding conifers take over the native landscapes (on our mountains and coasts) that we see or use while out and about. They also reduce the water available for our clean hydropower.
Wilding conifers can fuel devastating forest fires. Without fire breaks and dams for fire control, a wildfire in a conifer forest is far harder to control.
Wilding conifers are New Zealand’s no.1 weed.

* This message could also explain that WC trees can grow in extreme terrains, WC trees grow quickly and/or WC trees spread rapidly.

Other messages to consider providing, to help the general public further understand the WC issue are:

- a message that helps people identify WC
- a message that states if WC are useful for erosion control or not.

Implications for communications planning

Messages tested to communicate the 'need for control'
The words or phrases in blue worked well with the general public; those in yellow did not work well.

We must act now to control wilding conifers. Delays in treatment will quickly put the costs beyond our reach. One year's delay and infestations can cost 30% more to control.
Wilding conifers can be controlled. Wilding conifers are one of New Zealand's easiest weed problems to deal with. Their seedlings are easily spotted and seeds seldom survive in the soil beyond five years.
Right tree in the right place. Conifers offer shelter and opportunities for recreation and income, but left to spread they become a problem* for farmland, native ecosystems and water catchments.
Replacing wilding conifers with good trees. Where forests of wilding conifers are removed, they will be replaced** with native vegetation or low spread-risk trees.
We are making progress. We are making good progress with our national efforts to contain and control these weeds – in 2016-19 we protected 3 million hectares of land from wilding spread.
Wilding conifer forests have minimal or no value. Unlike orderly commercial forests, where trees are thinned and there's good road access; wilding conifer forests can be hard to walk through, and the trees can be different species, ages and shapes. All this makes removal difficult, with harvest costs often more than the trees are worth.

*People wanted to know more about the 'problem'
**Consider using 'restored' instead of 'replaced'

Messages tested to communicate 'the control methods'

Most wilding conifers can be controlled without the use of herbicide. Manual/mechanical removal can be used for seedlings, small trees and trees in accessible areas.
Some wilding conifers need to be controlled by hand-spraying the bark or using drill holes. This is sometimes required for larger trees, trees in difficult/unsafe terrain, in areas where felling can reduce grazing, and to leave the sprayed tree standing to shelter growing native plants.
As a last resort, large areas of wilding conifers may need to be controlled via aerial boom spraying. Boom spraying may be used if manual removal isn't possible (due to accessibility issues), if hand methods aren't cost-effective (e.g. for large, dense forestation) and if it can be ensured that there will be little damage to surrounding vegetation.

Implications for communications planning

Targeting options

Suggested options for targeted communications to the public, based on the research findings, are provided below. These are suggestions based on the topics covered in the research; there may be other targeting options or considerations that are not covered in these recommendations.

Option 1. Increase general public knowledge

Given that only a small proportion (11%) of the general public feel they have high knowledge of WC (and this only gets as high as 19% for people living in rural areas), a communications campaign aimed at all New Zealanders would be beneficial.

Notes on demographic differences:

- North Island vs South Island: Those in the South Island are slightly more aware of the general concept than in the North Island, but there are still many in the South Island who aren't aware (~40%). Furthermore, there is no significant difference in self-professed knowledge between the two islands.
- Females vs males: Although males are generally more aware and feel more knowledgeable on the topic, there are still many males who are not aware of the general concept (~40%) or do not have high knowledge (~80%).
- Under 65-year-olds: A high proportion (84%) of those over 65 are aware of the general concept, but most do not have high self-possessed knowledge (85%).
- Rural vs other areas: Those in rural areas are more likely to be aware of the general concept, but many don't feel they have high knowledge (~80%).

Option 2. Target those who currently see WC as beneficial

Another strategy could be to target those who currently believe or assume WC are beneficial. They are more likely to be:

- living in large towns (i.e. with a population between 10-50k)
- under 50 years.

Option 3. Target those who don't currently see WC as harmful

Another strategy could be to target those who are currently less likely to realise that WC are harmful (i.e. they see WC as evenly harmful/beneficial, more beneficial, or have no opinion). That is, those:

- living in cities or in large towns (i.e. with a population between 10-50k)
- under 65 years
- living in the North Island.

Implications for communications planning

Option 4. Target those who already see WC as harmful

Another strategy could be to increase the knowledge of those who currently believe or assume WC are harmful - to encourage greater advocacy from those already engaged. They are more likely to be:

- over 65
- hunters, boaties, anglers, trampers, those who picnic/sightsee near the bush or forest
- in the South Island or in the Waikato
- living rurally or in a small town
- male.

Option 5. Target those who are easier to shift

Another strategy could be to target those who currently view WC as beneficial but are more likely to shift their opinion on hearing the WC messages. That is:

- females
- Wellingtonians
- Cantabrians.

Option 6. Target those who are harder to shift

Another strategy could be to target those who view WC as beneficial and did not change their opinion after receiving the WC messages. The difficulty with this strategy is this group is a minority in the population (at 6%). The research indicates who is more likely to be in this group (e.g. males); however their wider demographic groups are often more likely to see WC as harmful anyway i.e. this is the case for males, anglers, boaties, those living in the Waikato or in small towns. Excluding these groups, the targets would be:

- those who generally have lower outdoor/environmental values
- those who have undertaken WC control on their own land
- those living in central/north Auckland.

Option 7. Target those who reject the use of aerial boom spraying to control WC

Those against the use of boom spraying make up 47% of the population and the number may even be larger, given that 13% needed more information or time to think. Based on the research there are no particular gender, regional or age groups more likely to be against boom spraying, but they are slightly more likely to live in rural areas. Therefore, messages to those who reject the use of boom spraying should mostly be directed at the general population.

Implications for communications planning

Option 8. Target those who reject the use of herbicides to control WC
Those against the use of herbicides to control WC make up a smaller proportion of the population (at 16%). In order to communicate with them, they are more likely to live in:

- Otago
- rural areas.

Image territories

To lead the general public communications campaign, new image territories should be explored.

- Given the effectiveness of the 'native ecosystems' theme, one option might be to illustrate the WC issue through native animals/plants that are threatened by WC spread.

Images that were tested in the research, that would be useful to support second-tier material/messages (but not lead the campaign), include visuals depicting:

- the use of a helicopter in steep terrain conducting targeted spraying of WC
- the spread of WC forests over alpine areas over time.

Other images that weren't tested but would be useful for the general public's understanding include:

- maps illustrating the spread of WC
- image/s of WC trees to help people identify them in the environment.

Lead messenger

- DOC was seen as the ideal champion of WC messages.
- But people also expect to see messages from regional councils and MPI.
- People expect that there would be links to expert/scientific sources of information on WC from other websites/ postings. Note: The programme website (https://www.wildingconifers.org.nz) could be used for this.

APPENDIX:
Additional information from the general public survey

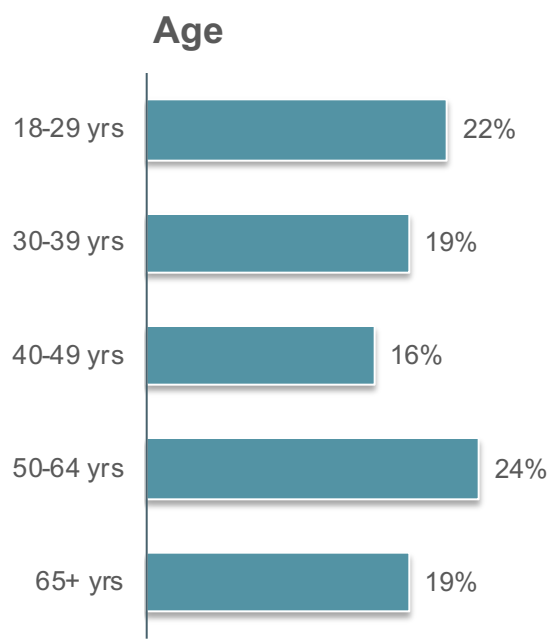
TheNavigators

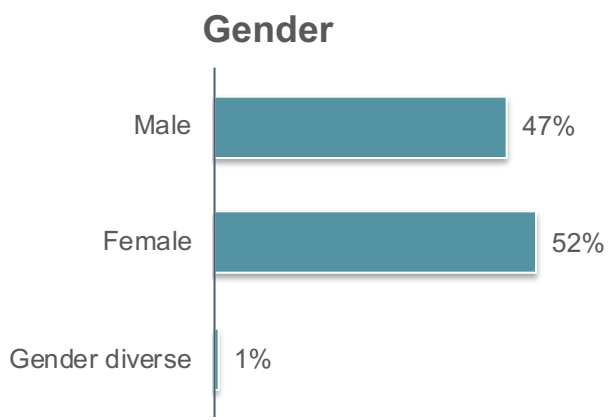
Profile of the general public sample

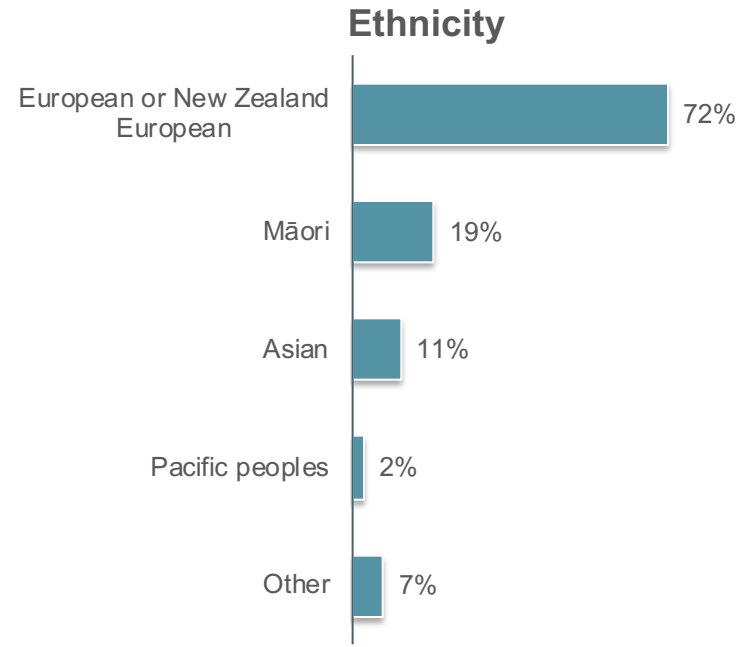
Across these breaks, younger people, females and Māori generally had lower knowledge on WC and were less likely to agree with spray methods.

Demographics

Q1 Please tell me which of the following age groups you belong to:… Q2. Are you:... Q21.Which ethnic group/s do you belong to? (Please select all that apply to you.)
Base: n=1,346 Note: Based on weighted data.







General age differences

- Older people (65 or over) generally had higher knowledge on WC, while younger people (18-39 year olds) had lower knowledge.
- Older people (50+) were generally more likely to agree with all forms of WC control.

General gender differences

- Females generally had lower knowledge on WC.
- Males were more likely to agree with all forms of WC control.

General ethnic differences

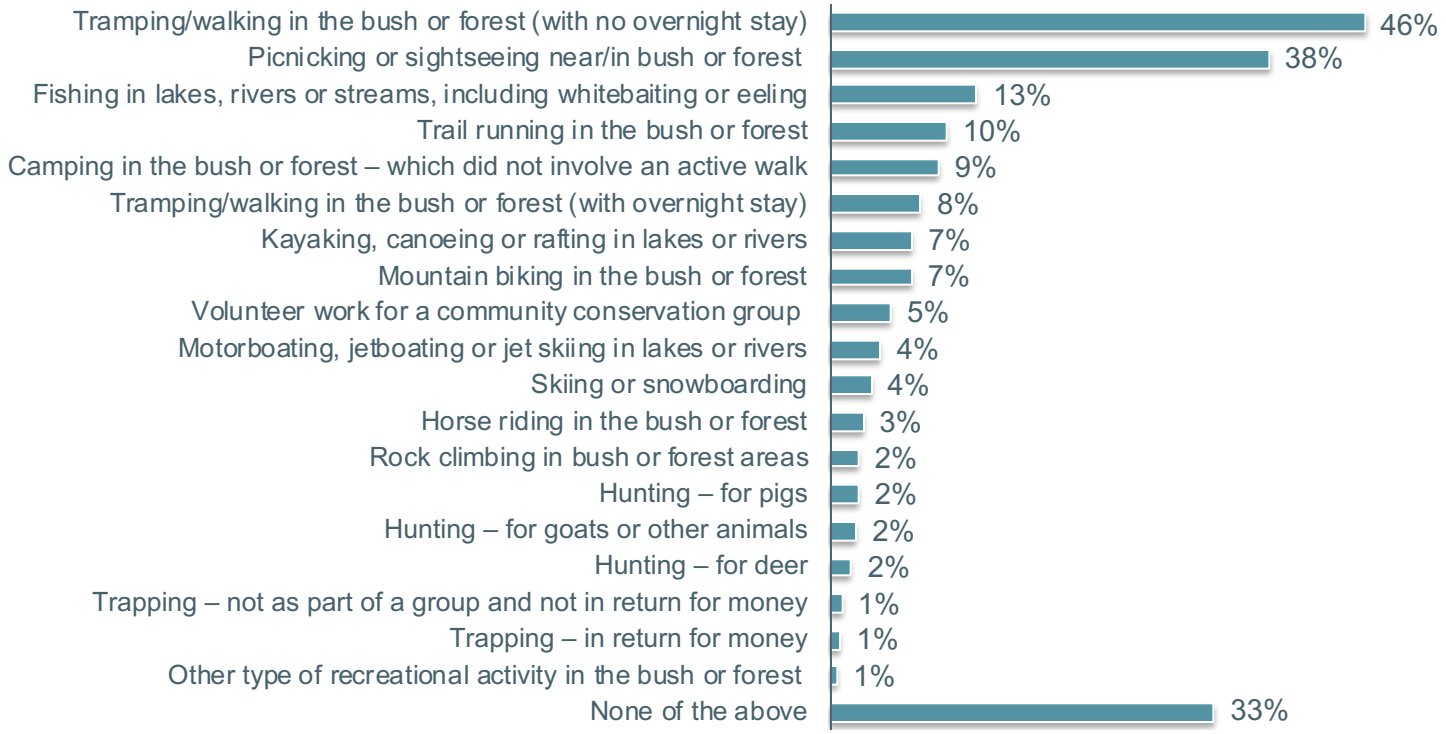
- Māori were more likely to have low levels of knowledge on WC.
- Māori were more likely to say they needed more information or more time to think before giving their opinion on the WC control methods.
- Asians were more likely to say they did not mind what type of control methods were undertaken.

Profile of the general public sample

Two-thirds of New Zealanders had been involved in some sort of activity in the bush/forest in the last 12 months and 16% had undertaken WC control in the last 12 months.

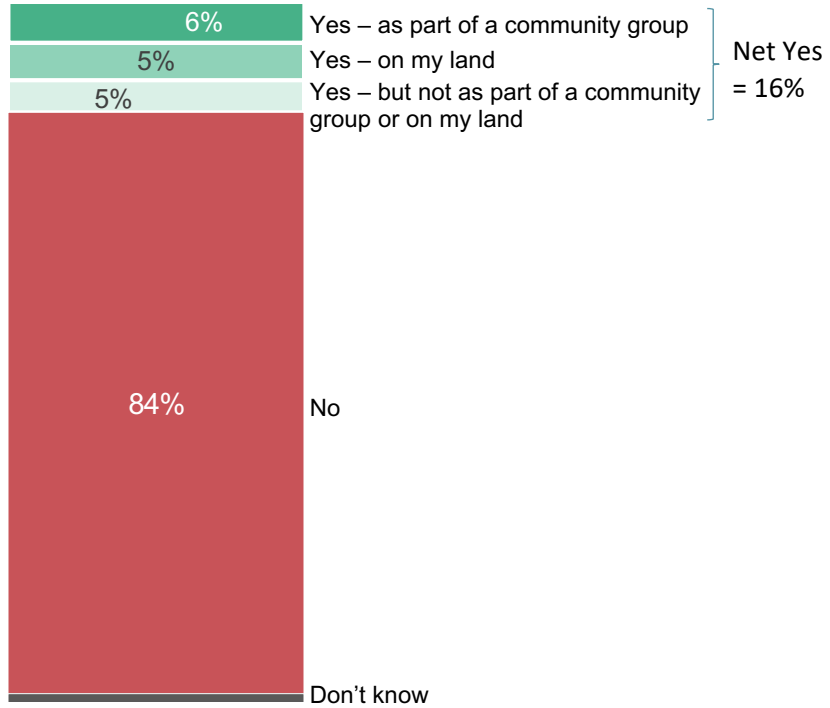
Activities in the bush or forest

Q18. In the last 12 months, have you undertaken any of the following activities in New Zealand? Please select all that apply.
Base: n=1,346



Involvement in wilding control

Q19. In the last 12 months, have you undertaken any form of wilding conifer control?
Base: n=682 (Those aware of one of the terms for WC)

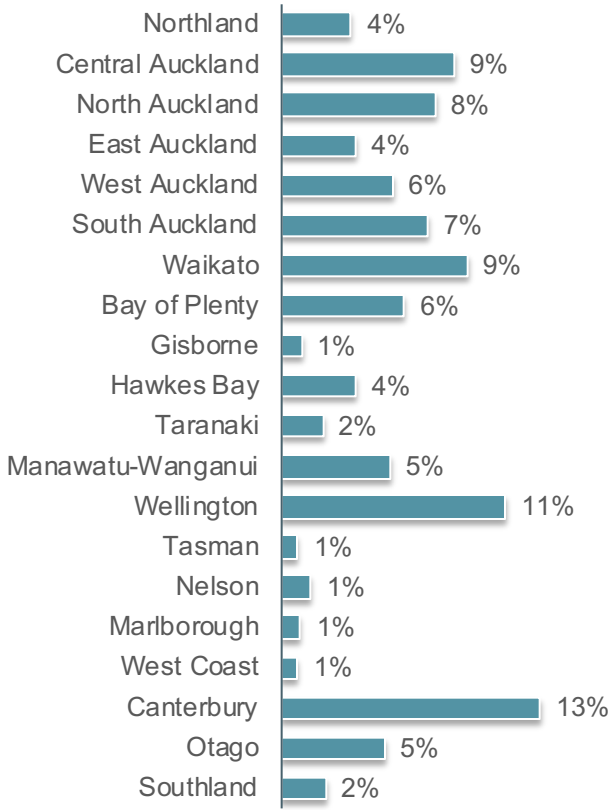


Profile of the general public sample

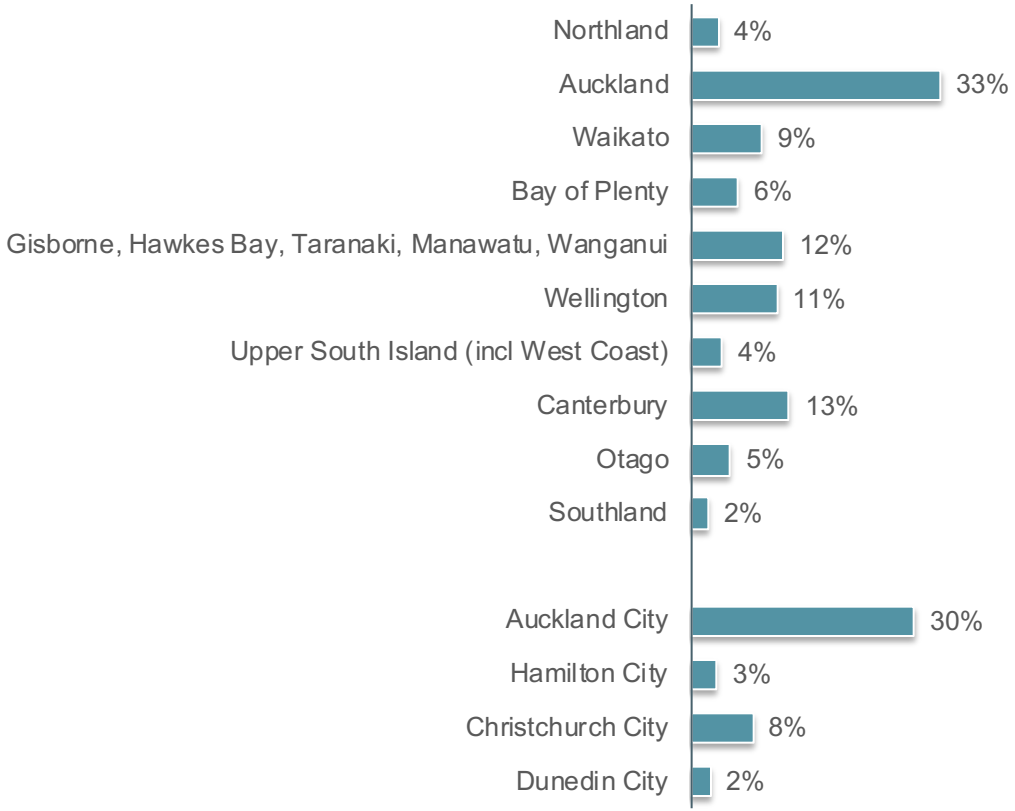
Regions and locations

Q3. Which region of New Zealand do you live in?; Q4. Where do you live?
Base: n=1,346 Note: based on weighted data.

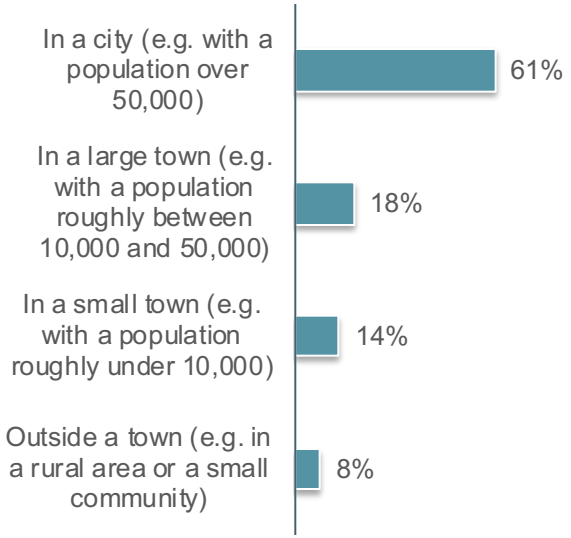
Regions (with Auckland split)



Region groupings & cities of interest



City, town or rural

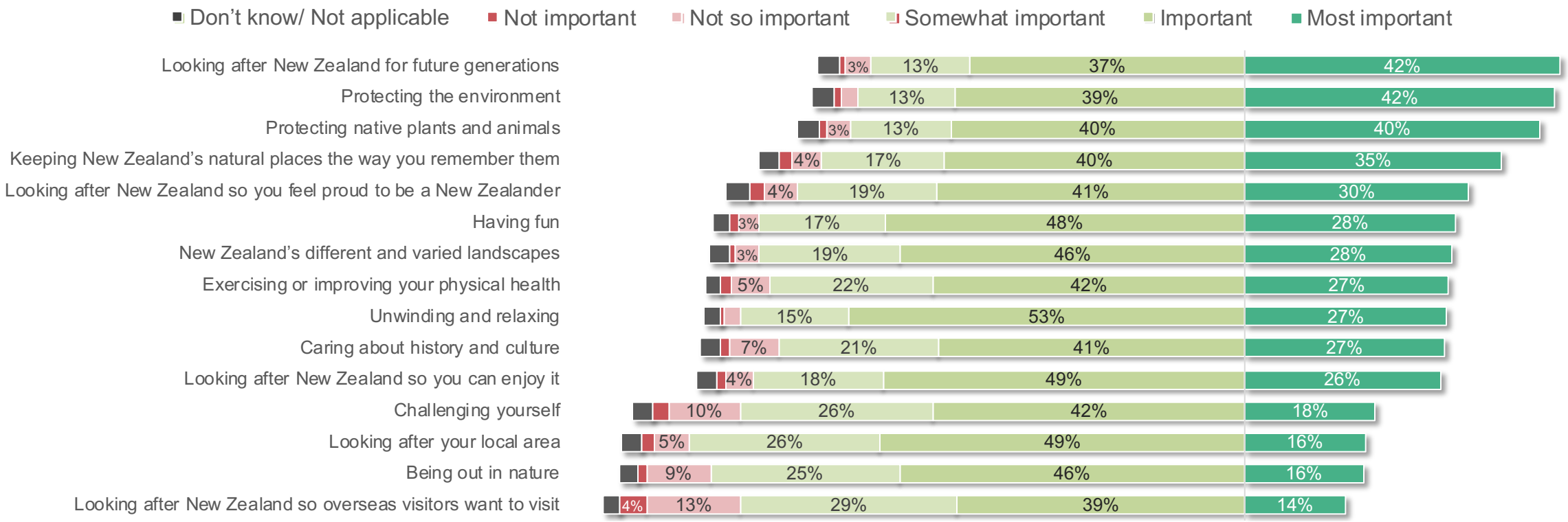


Profile of the general public sample

Protecting the environment and native plants and animals were important for most New Zealanders, along with looking after the country for future generations. More so than having fun, exercising, relaxing or being out in nature.

Values

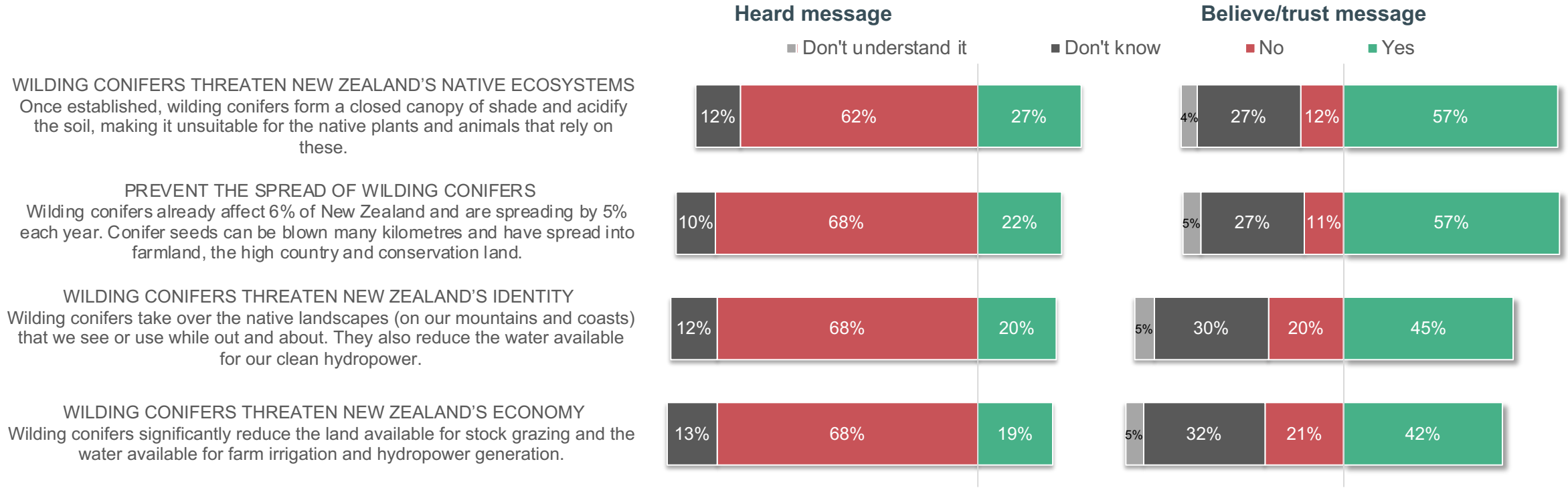
Q20. To what extent are the following important to you? (Please try and separate out what is 'most' important to you – versus other levels of importance)
Base: n=1,346



Additional charts: Most New Zealanders have not heard the ‘WC issue’ messages. They’re more likely to believe the ‘ecosystems’ and ‘prevent the spread’ messages.

Awareness and believability of ‘issue’ messages

Now we’re going to show you some messages that you might see in a brochure, on a sign or in the newspaper. For each message, please answer both questions.
Q11. Have you heard this message before? Yes/No/Don’t know. Q12. Do you believe/trust this message? Yes/No/ Don’t know/Don’t understand it
Base: n=1,346



Note: This data is also presented on an earlier slide in the report.

If you have any questions on this research,
please contact us.

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Ministry for Primary Industries
Manatū Ahu Matua