



The impact of wilding conifers on cultural values

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KEY MESSAGES

Wilding conifer spread projection scenarios of 5–6% per annum concerned people interviewed in Queenstown, Twizel, and Mount Tarawera. Wilding conifer spread was thought to threaten cultural values in each of these areas. The government's goal to plant one billion trees, including some species of exotic conifers, could potentially make it more difficult to contain the spread of wilding conifers.

This, in turn, may influence public support for the One Billion Trees Programme should the programme exacerbate the spread of wilding conifers. Given this, policy makers need to show the public that the Programme is carefully considering where new conifers are planted and develop **containment strategies for these plantings.**

INTRODUCTION

The New Zealand government is embarking on an ambitious project to plant one billion trees by 2028. The objectives of the One Billion Trees Programme are to improve land productivity, reduce soil erosion, mitigate against climate change, and create employment opportunities. This initiative intends to plant both native and exotic tree species.

Concurrently, New Zealand is responding to the environmental problems posed by exotic wilding conifers (e.g. Radiata pine, Douglas fir, Contorta pine). Wilding conifers occupy 15 per cent of New Zealand's land area, approximately 1.7 million hectares.¹ Wilding conifers often outcompete other forms of plant-life resulting in ecosystem change. Data on the spread of wilding conifers and their effects have not been consistently collected, despite wilding conifers being recognised as an environmental weed since the 1960s.²

Plantings under the One Billion Trees Programme are expected to include exotic species such as radiata pine and Douglas fir³, which are known to contribute to the wilding problem. The New Zealand government now faces a dilemma: how to contain the spread of wilding conifers and achieve the

goals of the One Billion Trees Programme. How the government responds to this dilemma will, in part, be determined by cultural values and attitudes towards the spread of wilding conifers. This policy brief presents some findings on how wilding conifers affect cultural values in New Zealand that can be used to help policy makers better understand and respond to this issue.⁴

Cultural values, in this policy brief, are defined as “the collective norms and expectations that influence how ecosystems accrue meaning and significance to people”.⁵ Cultural values incorporate three dimensions: 1) cultural practices (what people do) undertaken in 2) environmental spaces (landscapes, ecosystems, or places) that generate 3) cultural ecosystem benefits (such as spiritual enrichment, recreation and aesthetic experiences as well as unpleasant feelings, fear, etc.). This research examined the effect of wilding conifers on cultural values in three locations: the Queenstown Lake Wakatipu region, the Twizel Lake Pukaki region, and the Mount Tarawera and Lake Tarawera region. Surveys, interviews, and participatory mapping were used to solicit the cultural values (see Box 1 for more information on the approach used).

EFFECT OF WILDING CONIFERS ON CULTURAL VALUES

We asked people in the three areas to detail the effect of wilding conifers on local sites of cultural significance. People were presented with two scenarios: 1) a projected 5–6%⁶ per annum spread of wilding conifers by 2035, and 2) wilding conifers are completely removed by 2035.

Lake Wakatipu

Cultural values in Lake Wakatipu were associated with the local environment and what people do in this environment. Landscapes, history, and tourism were noted as key cultural values. Mountains such as Ben Lomond and Coronet Peak gave people opportunities to walk, bike, and appreciate the views. Towns such as Arrowtown or Glenorchy offered

opportunities to remember family histories or memorable moments like marriage proposals.

There was a fear that wilding conifers could affect these values. For example, some people were concerned about the effect wilding conifers could have on the tourism industry. One interviewee stated:

landscape that you see now, which people love – the blue lake and the yellow tussock land...The landscape will look different, but I think most of the heritage sites will be obliterated too...I think the gold mining history certainly would be obliterated. And then you wouldn't get the vistas if you were in amongst the trees, either.

...If Walter Peak or Cecil Peak were covered in wilding pines, that's a very different vista...to the quite stark

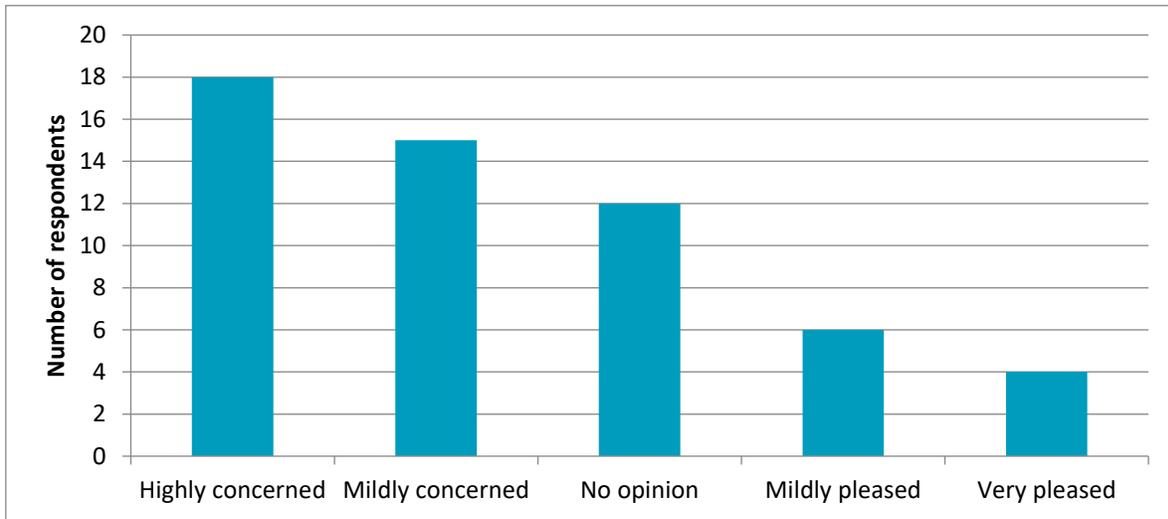


Figure 1. Level of concern expressed for the impact of the spread of wilding conifers around Lake Wakatipu (n = 55).

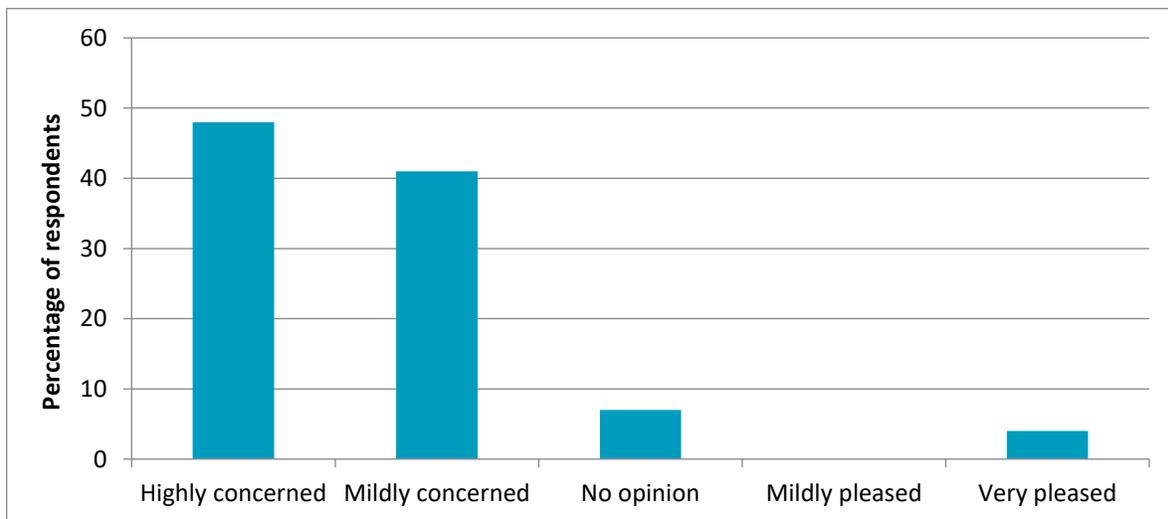


Figure 2. Concern about 5% annual increase in invasive tree cover for the area around Lake Wakatipu.

Twizel Lake Pukaki

In Twizel Lake Pukaki, heritage sites such as the Church of the Good Shepherd evoke memories of weddings and holidays. Environmental landmarks like Aoraki Mount Cook or Lake Tekapo were considered representative of New Zealand’s alpine splendour, while simultaneously providing people with opportunities to engage in activities such as boating and heli-skiing. Local townships were valued as good places to make a home. As one interviewee said, people also value the sense of isolation and solitude:

I love the harshness. I love the grasses. Just the whole – because it’s a desert, and it’s just the harshness of that desert is absolutely beautiful. I think some people don’t see it...Whereas it’s actually got so much beauty within itself. I struggle with the dairy farms.

This unique stark landscape is threatened by dairy farms and infrastructure such as hydro-electricity and irrigation canals.

The growth of farming in the region threatened some cultural values, but it is farmers who are financially affected by the spread of wilding conifers. One interviewee reported that wilding conifers affected the farming lifestyle they value:

We would carry on farming here because we’re managing our patch...[but] we don’t want any trees up. I’ve actually got a guy full-time just going around [removing trees]. I’m employing him to walk around the blocks and it’s constant...He’s not keeping up with it...But it’s [wilding conifers] going to include so much of our visual vistas that, let’s face it, it’s going to destroy that isn’t it, with that many trees around? We’ve already seen that.

Some locals blame government incentives for the spread of wilding conifers. In the late 1990s some landowners around Lake Pukaki planted conifers on their land to receive carbon credits. These trees, which produce revenue for those landowners, are seed sources for wilding conifers, which create ongoing costs for their neighbours.

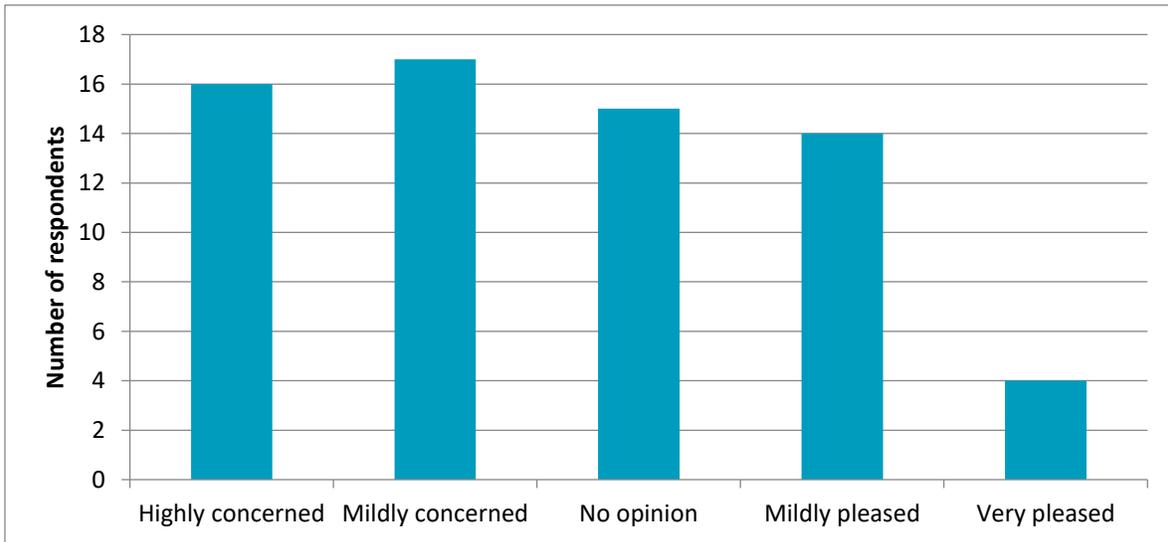


Figure 3. Level of concern expressed for the impact of the spread of wilding conifers around Lake Pukaki (n = 66).

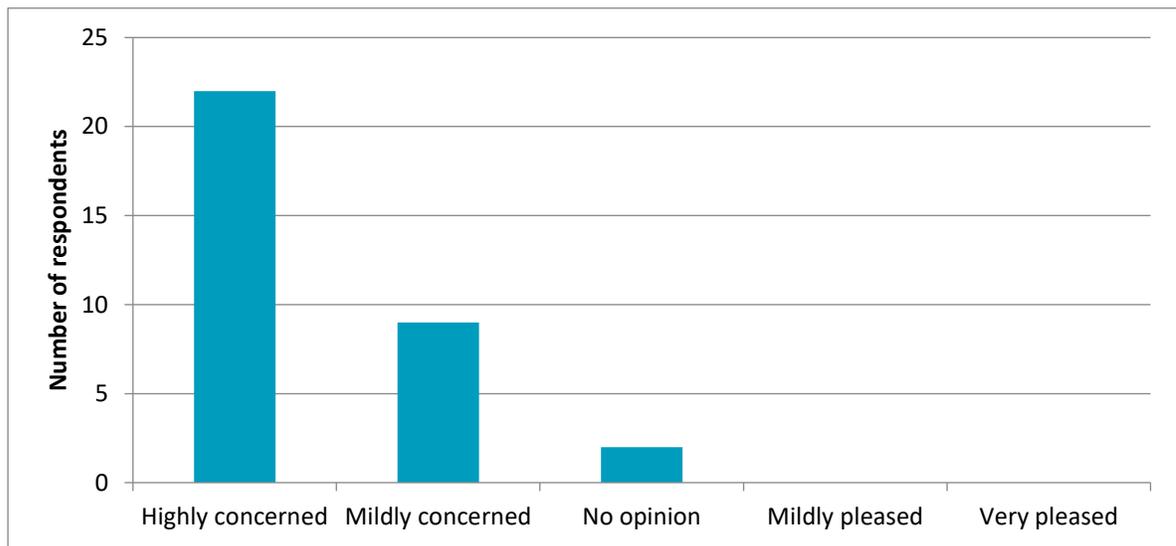


Figure 4. Concern about 5% increase in tree cover for the area around Lake Pukaki (n = 33).

Tarawera region

In the Tarawera region cultural heritage sites such as the buried village of Te Wairoa are of great significance to local Māori. Natural heritage such as hot water beaches and freshwater lakes are valued for experiences such as camping, swimming, and boating. Mt Tarawera was valued by the public for its magnificent scenery as well as the local history. A connection between the ecological health of the Tarawera region and the health and well-being of the local people was articulated. One interviewee said:

I know that there's a really deep spiritual connection that certain people feel to the mountain, so it's more than "Oh, it's so pretty. I go up there and have a picnic". It's [that] people's ancestors were buried there. People fought over it. People died over it. People look to it and go, "That's our mountain. That's our river". It's all connected. It's kind of like if you have a mountain and a river that's flourishing, it means that people will flourish.

This quote highlights how many New Zealanders value conifer-free environmental spaces for reasons other than tangible economic or ecological benefits. In Queenstown wilding conifers threatened spectacular vistas, and in Twizel wilding conifers threatened the stark landscape valued by locals. But in both these cases tangible economic threats were also articulated. By contrast, in the Tarawera the landscape was valued primarily for connections to human and non-human ancestors and for its unique history.

There were different levels of concern about wilding conifers in all three locations. But when participants were presented with the 5–6% per annum growth projection, there was near universal concern about the impact this growth would have on cultural values. Responding to this growth scenario, there was only one respondent in the Queenstown area and two in the Tarawera who were pleased with the potential spread of conifers.

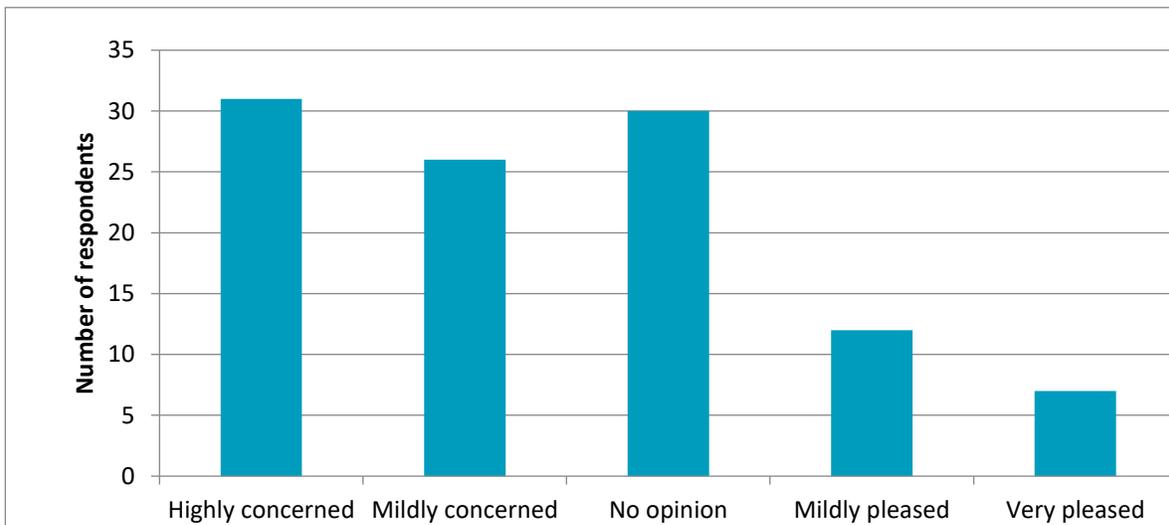


Figure 5. Level of concern expressed for the impact of the spread of wilding conifers around Lake Tarawera ($n = 106$).

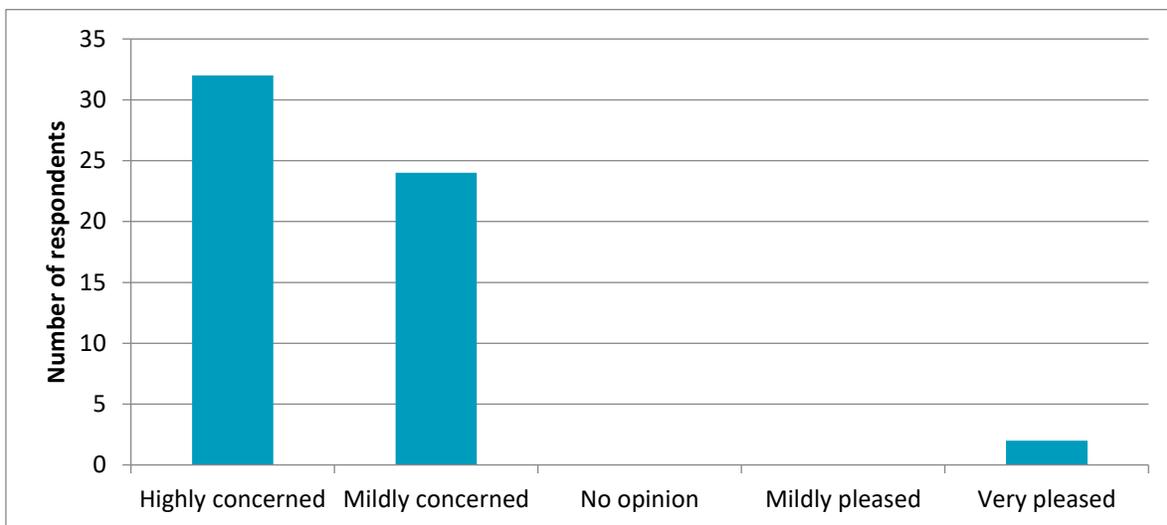


Figure 6. Concern about 5% annual increase in tree cover for area around Lake Tarawera ($n = 58$).

POLICY IMPLICATIONS

We found that New Zealanders are concerned about a 5–6% annual increase in the spread of wilding conifers. In all three areas, the spread of wilding conifers threatened cultural values associated with local cultural practices. If we extrapolate these findings to the context of the One Billion Trees Programme, we expect there to be some public concern if the Programme has detrimental impacts on cultural values. This concern could be further amplified if the planting programme is linked to

other environmental threats such as fire risk or forestry slash during flood events.

This research provides insights for the One Billion Trees Programme and its implementation; in particular, the potential public perception and response to unintended consequences from any increase in wilding conifers in the landscape. Some of the key considerations for successful implementation of the programme are:

- where to plant wilding conifers to minimise any potential negative side effects such as increases in the spread of wilding conifers
- to develop containment strategies to limit the spread of wilding conifers
- clarify who is responsible for paying for wilding conifer removal, especially in situations where grants have been issued to private landowners to plant exotic conifers.

Box 1: Methods used to collect data on cultural values

Research participants contributed either through an online survey, participatory mapping, or semi-structured interviews. Survey participants were recruited primarily through paid advertising on Facebook. 232 surveys were completed in which participants mapped 985 places of significance across the three areas. 23 semi-structured interviews were completed using a snowballing sampling technique to identify people with an interest in natural and historic heritage values in the sites.

All research participants were asked:

- What do people do to interact with each other and the environment (cultural practices)?
- Where do people interact with each other and with the environment (environmental spaces)?
- Why people do what they do, what do they feel and what benefits do they derive from these in interactions (cultural ecosystem benefits)?

Box 2: Resources

Data for this policy brief was taken from the report: Greenaway A, Samarasinghe O, Rees T, Bayne K, Velarde S, Heaphy M, Paul T, Kravchenko A. 2015. *Evaluating the (non-market) impacts of wilding conifers on cultural values*. Landcare Contract Report LC2396. Auckland: Landcare Research, Scion.

The Ministry for Primary Industries has also commissioned a report that measures public awareness of wildings to develop messaging for future wilding conifer control. Data for this report were collected through an online survey of the general public and in-depth qualitative interviews with outdoor recreationalists. The findings of this report should be made public by the end of 2019.

¹ Howell, C.J. (2016). Recreating the invasion of exotic conifers in New Zealand. 20th Australasian Weeds Conference, Perth, Western Australia, 11–15 September 2016. Weeds Society of Western Australia.

² Beauchamp 1962, as cited in Howell, C.J. (2016). Recreating the invasion of exotic conifers in New Zealand. 20th Australasian Weeds Conference, Perth, Western Australia, 11–15 September 2016. Weeds Society of Western Australia, p.258.

³ <https://www.mpi.govt.nz/funding-and-programmes/forestry/planting-one-billion-trees/> [Accessed 11 September 2019].

⁴ Data for this policy brief is taken from the following report: Greenaway, A., Samarasinghe, O., Rees, T., Bayne, K., Velarde, S., Heaphy, M., Paul, T., and A. Kravchenko. (2015). *Evaluating the (non-market) impacts of wilding conifers on cultural values*. Landcare Contract Report: LC2396. Auckland:

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<https://www.doc.govt.nz/globalassets/documents/conservation/human-values/evaluating-non-market-impacts-of-wilding-conifers-on-cultural-values.pdf>. [Accessed 11 September 2019].

⁵ Church, A., Fish, R., Haines-Young, R., Mourato, S., Tratalos, J., Stapleton, L., Willis, C., Coates, P., Gibbons, S., Leyshon, C., Potschin, M., Ravenscroft, N., Sanchis-Guarner, R., Winter, M., and J. Kenter. (2014). UK National Ecosystem Assessment follow-on. Work Package Report 5: cultural ecosystem services and indicators. UK: UNEP-WCMC, p.16.

⁶ According to the report authors, a 5% scenario was presented during the online survey but after the survey was released an updated model showed that 6% was more realistic. The 6% scenario was presented to participants in interviews. For further explanation, see page 19 of Greenaway et al. 2015.