

2021-2031 Long Term Plan submission

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Purpose of this Submission

This submission asks the Council to invest an estimated \$30k into wilding pine and pest control on Marlborough District Council land situated in Boons Valley, Waikawa.

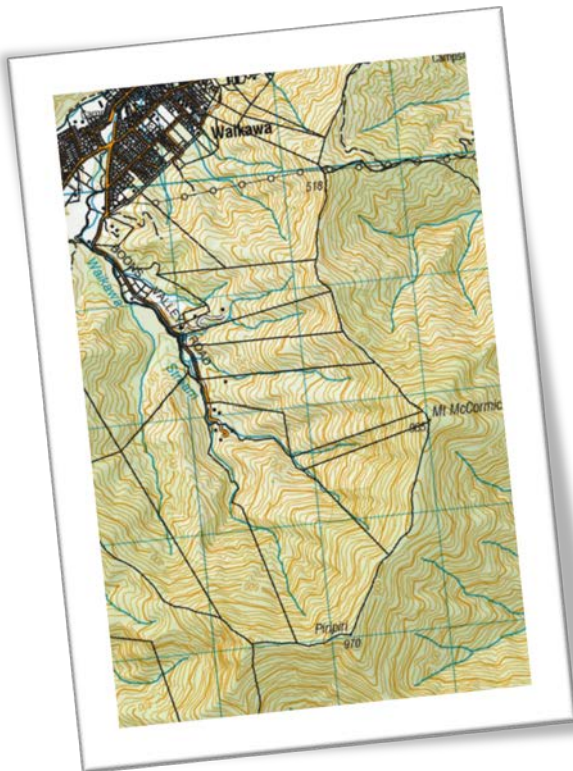
This is to support current resident efforts on their own private land in Boons Valley and in line with the Council's mission statement: ***"We invest in Marlborough's future, our people, quality lifestyle and outstanding natural environment"***.

About Boons Valley

Boons Valley lies in Waikawa, just 8 minutes from the heart of Picton.

At one end of Boons Valley (the main road end) sits the wonderful Waikawa Marae. Waikawa Marae marks the entrance to the stunningly beautiful Tōtaranui (Queen Charlotte Sounds). These are the waters our Te Atiawa tūpuna travelled as they journeyed from Taranaki in the 1800s to make this place home. The Marae is central to the functions of iwi and many community groups across Te Tau Ihu (Top-of-the-South).

At the far end of the Valley (the mountain end) you will find the significant mountains of Piripiri and McCormick.



The writers of this submission inhabit 196.35Ha/485 acres being the last two titles at the head of the valley and has been designated as a Significant Natural by Council. The property's wilderness includes Mount Piripiri, virgin native forest that contains 500-year-old plus Totara, Rimu and Southern Rata. It is also home to nationally vulnerable carnivorous land snail Pupu rangi/Poweliphanta hochstetteri bicolour (Pupu Rangi), Megadromus sp. (black beetle) and the valued short jawed kokopu (trout) (as identified in Council's June 2020 LIM 200176) and home to rare Rifleman, TomTit, South Island Robin, Kererū, Kārearea and a healthy population of titiwai (glowworms). It has strong cultural significance with the Marae's Te maunga **Piripiri** on its title.

Our land is bordered by Council land on the West and East and by 3000ha DOC land on the top boundary. The DOC land is mature virgin bush. The Council land contains virgin forest and natural regrowth and home to a significant number of wilding pines that are continuing to spread at the expense of natural bush and a healthy population of pests including

possums, goats, rats, stoats and feral cats.

The importance of Council and our Environment

As private landowners, we greatly appreciate the critical partner work that Council does through its large region to restore, protect and sustain our precious environment. Council has a huge responsibility in its role of kaitiakitanga, and it is recognised the Council cannot do everything and has some difficult decisions to make.

We also acknowledge the importance of individuals, local communities, Iwi, community groups, central Government, other funders and landowners taking leadership responsibilities to help make real, sustainable change to our environment. Guardianship of our natural world is a collective responsibility and arguably our greatest challenges of this generation.

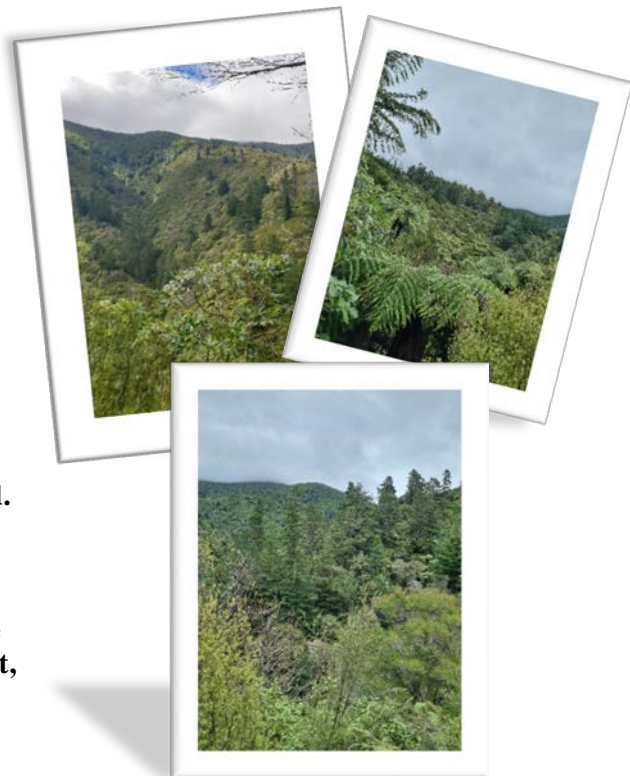
Request for Support

Wilding Pines

1. We are making significant efforts to remove Wilding Pines from the large two titles that make up 268 Boons Valley Road and ask the Council – that owns boundary land to our titles to join our efforts follow suit and embrace this battle against wilding pines. The ecological impact of wilding pines on native plant species and our native bird populations is clearly illustrated in this Torea Bay photo from the Marlborough Sounds Restoration Trust (Figure 1) It shows a before and after photo of the land 12 years on from removing wilding pines.
2. Historical photos of Council land in Boons Valley show an enormous difference to today's skyline. The march of the wilding pines is not only reducing our precious native flora and fauna but also creating a growing fire risk for property owners in Boons Valley and now impacting on sunlight hours on some properties.
3. To date, as property owners, we have removed more than 5000 wilding pines in the past 10 months. We estimate we are about 20% through the total number that need to be removed. We are encouraging other Boons Valley private property owners to also take up this challenge. We are enlisting the expertise of the Marlborough Sounds Restoration Trust and Council staff to guide the most efficient way to remove all of the pines on our property.
4. **We respectfully ask that Council engages the Trust to remove the pines from its land simultaneous to our work so a total solution for the valley can be found. We believe in verbal discussion with the Marlborough Sounds Restoration Trust that this will cost around \$20,000 for the Council to remove the pines from its land. This cost needs to be properly calculated and we are happy to work with the Council, Restoration Trust, Iwi and other land owners to properly scope this project and how best to proceed.**



Figure 1: Torea Bay 12 years before and after photo



Pest Control

- We are putting significant effort into controlling the many pests and predators that are currently destroying the natural habitat. We have invested in and built almost 130 traps that we check multiple times per week and have removed almost 300 rats, possums, stoats, weasels and goats in the past 10 months (all identified on TrapNZ). In addition we have placed almost 150 wasp bait stations out. Already we are seeing a positive impact on our native bird population (all recorded and identified on the bird sighting App E-Bird). Encouragingly, we are also seeing precious early regrowth of plant ecosystems such as kanuka, rangiora, akaeke, makomako, rimu, and reduced predation on Nīkau, Southern Rata and Te Kouka.
- We are enlisting the expertise of Picton Dawn Chorus, DOC and Council staff to help advise on trapping plans, bird counts and targeted pest species to ensure we have the greatest sustainable impact on pest numbers. This work will significantly support birdlife in Picton and Waikawa as Boons Valley is a corridor for Kaipupu sanctuary and the Snout where significant community trapping efforts are underway. This corridor is used by both native birds and predators and particularly significant because it covers a diverse range of ecology and bird species found from sea level to alpine conditions of almost 1000m.
- **We respectfully ask the Council to join us and embrace controlling the many pests on its land, simultaneous to our work, so a total solution for the valley can be found. Together, as neighbours we have an opportunity to impact our natural environment positively. We believe the cost of this work will be in the vicinity of \$10,000 and largely involve providing access to the Council land and support for traps so community groups can be developed to help with this mahi. This cost needs to be properly calculated and we are happy to work with the Council, Picton Dawn Chorus, DOC, Iwi and other land owners to properly scope this project and how best to proceed.**



Letters of Support

1. Waikawa Marae
2. Te Ātiawa Trust
3. Picton Dawn Chorus
4. The Marlborough Sounds Restoration Trust
5. Department of Conservation
6. Private Land owners/neighbours David & Jenny Wells
7. Private Land owners/neighbours Rob & Michelle Neil

Appendix One:

The Challenge of Wilding Pines

Wilding conifers are invasive weeds that threaten to permanently alter the unique landscapes that are only found in New Zealand.

Conifers were introduced to New Zealand in the 1880s. Since then they have spread from forests, shelterbelts and erosion plantings. In native forests, wilding conifers compete for space with native trees and plants and don't provide the advantages that native trees do, such as food for native birds or insects. Their needles form an acidic carpet which discourages regeneration of native forest floor species. They can be visually intrusive in native forest areas.

Spread by seeds, they can start reproducing at 8 years of age, or even younger in some cases. Known seed viability ranges from 4 years (*P. contorta*) to 15 years (*Pseudotsuga menziesii*). This compares to a Beech tree that can take up to 60 years to start reproducing.



Fig 2: How Wilding Pines are changing the landscape in the Marlborough Sounds (MSRT 2021)



Without any control they will form dense forests that have environmental consequences on our native ecosystems, use up scarce water, and alter iconic landscapes.

Wilding conifers cover more than 1.8 million hectares of New Zealand. Despite control efforts they are spreading at an estimated rate of 5% a year.

Without large scale funding and control within twenty years 20% of New

Zealand will be covered with wilding pines.

Fig 3: The rapid spread of pines in Marlborough regenerating land. (MSRT 2021)

As wilding conifers spread across our landscapes they:

- reduce the numbers of plants and animals that are only found in New Zealand
- Impact on farming by significantly reducing the available grazing land
- create a fire risk as they are dense and impenetrable with no road access
- limit recreation and tourism related activities
- can cause acidification of soils which leads to the depletion of some minerals such as calcium
- use more water, so runoff is decreased which affects streams in the catchment
- release large volumes of water vapour to the atmosphere through their leaves
- provide habitat for exotic pest plants, animals and diseases.

The photos below were taken over 17 years from Mid Dome, Southland. They show how rapidly wilding conifers colonise the landscape when left unchecked. (Department of Conservation Website 2021)



Figure 4 The high impact and speed of Wilding Pine growth (Ref Department of Conservation 2021)

Wilding Conifers in New Zealand (Ministry of Agriculture & Fisheries, Victoria A Froud 2011)

There have been multiple widespread studies on the impact of wilding conifers on the natural ecology of Aotearoa. Below, are some useful referenced extracts from a paper prepared for the Ministry of Agriculture & Fisheries in 2011.

Wilding conifers grow faster and taller than low-stature indigenous vegetation. Indigenous ecosystems that are at particular risk from wilding conifer invasion.

Once wilding conifers invade low stature communities they shade out many of the native plant species and can change soil characteristics. Where the spread results in dense wilding conifer growth (usually from fringe spread) wetlands and riparian areas can become dry, especially in small catchments.

In some cases wilding conifer spread may lead to the local extinction of native plant communities. Examples of threatened communities include: the naturally stunted native shrubland communities on the Nelson Red Hills ultramafic substrates; and remnant shrubland and grassland communities in the intermontane basins of the South Island high country.

Effects on alpine ecological communities

A number of the more invasive wilding conifer species (e.g. contorta pine, mountain pine and Corsican pine) are able to grow at altitudes above the local treeline formed by indigenous forest species (often mountain beech in eastern areas). Wilding conifers that grow above the native treeline cannot be replaced by native species as part of natural succession processes.

Effects on soils and soil fauna

Studies have found that the conversion from native tussock grassland to radiata forest can lead to a reduction in: soil pH, exchangeable calcium, magnesium, potassium and iron.

There can be lower levels of microbial biomass for carbon, nitrogen and phosphorus in the mineral soils under radiata pine, compared to tussocks reflecting lower soil organic matter inputs to the mineral soil. A number of the observed soil fauna differences between radiata pine and tussock grassland were associated with the soil differences.

Overall, the ecological characteristics of wilding pines means that they present significant risk to conservation land, particularly that which contains low stature vegetation.

(Walker et al. (2009); Ledgard 2006, Davis et al. 2011; Thomas Paul, Scion, pers. Comm; Meurk & Hall 2006; Yeates & Sagar (1998); *Wilding conifers in NZ: Beyond the status report FINAL Dec2011 V A Froude Pacific Eco-Logic*)

Effects on indigenous species

Where low stature indigenous vegetation is overwhelmed by wilding conifers, there may be local extinctions of individual species. For example populations of *Hebe armstrongii* in the Waimakariri Basin and *Hebe cupressoides* throughout the high country are threatened by wilding conifers. Native lizards and invertebrates of open communities can also be threatened.

Effects on water quantity

Catchments interception of rainwater by trees can reduce flows to levels that adversely affect existing uses of water for instream aquatic ecosystems.

Data from a number of New Zealand catchment studies have shown that where pasture has been replaced by radiata pine forest, there has been a reduction in annual surface water yields of 30-81%, with the upper end of the range being observed in the dry South Island sites.

Different parts of the catchment make different contributions to water flow. Riparian zones, valley bottoms, hillside depressions tend to be the areas of greatest water storage. Trees planted or spreading into these areas would have a disproportionate effect on stream flow.

(*Wilding conifers in NZ: Beyond the status report FINAL Dec2011 V A Froude Pacific Eco-Logic* 25)

Landscape change

The characteristics of wilding conifers and their potential to dominate indigenous vegetation have landscape/visual amenity as well as ecological consequences. These landscape impacts are generally greatest in landscapes currently characterised by indigenous tussocklands and other low stature indigenous vegetation (e.g. South Island high country, Central North Island volcanic plateau).

Landscape impacts are perceived through the lenses of personal preferences and their significance depends on the values held by different people. A landscape dominated by northern hemisphere tree species (where it was once indigenous tussockland) may be preferred by some. To others such a landscape reduces the sense of openness, detracts from an environment that is unique to New Zealand and changes iconic vistas.

Further, both the South Island high country and volcanic plateau landscapes are important for tourism. Large-scale landscape changes could adversely affect the industry in these areas. Apart from the change to a unique and indigenous environment (and hence New Zealand's tourism product), there are potential tangible impacts on tourism. In the Wakatipu basin these effects could include blocking of views, changing of vistas (as trees grow above ridgelines) and impeding access to walking tracks and recreational areas (or increasing costs of maintaining access).

Cultural values

Wilding conifers could affect Maori cultural values in some locations including changing cultural landscapes as well as reducing water flows and river health/mauri.

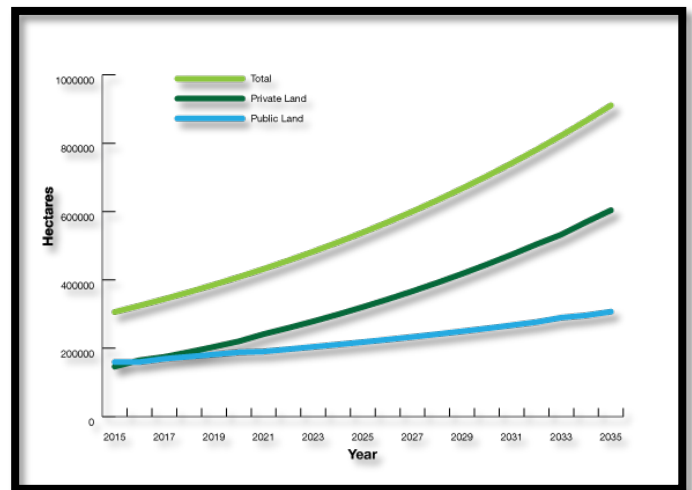
In Marlborough and Boons Valley both the Waikawa Marae and Te Atiawa Trust support the removal of wilding pines to enhance restoration of the whenua.

Enhanced fire risk

Fires in mature unmanaged wilding conifer stands are likely to burn hot and could potentially threaten adjoining land uses (including indigenous ecosystems and planted/managed forests).

An assessment of spread for one high country station near Queenstown found that while the station had been virtually free of wilding conifers up to the early 1970's, by 2003 one third of the southern part of the property was affected. Without control, a conservative assessment predicted that all of the station would have a significant wilding cover within 80 years. Adjoining protected areas would be likely to be occupied by wilding conifers within 40-60 years.

This graph shows the estimated increase across Otago in hectares infested by wilding conifers over the next 20 years if the present management regime continues.(Ref Otago Regional Council data 2021)



Effects on native forests

Most wilding conifers have a low tolerance of shade and so do not pose a threat to established indigenous forests but they do hugely impact regrowth of native bush.



Figure 5 A striking picture of before and after at Awapawa Island (Marlborough Sounds Restoration Trust 2021)

Due to its higher tolerance of shade, Douglas fir is one of the few introduced conifer species that is capable of invading canopy gaps in native forests.

Douglas fir is able to spread into shrublands and regenerating native forests before canopies close. It is able to establish in mature beech forest (especially mountain beech), particularly where the beech canopies are more open/are thinning and the understory is relatively sparse. Where the canopy of mountain beech forest has thinned (because of old age or possibly an environmental stressor) that forest is more vulnerable to Douglas fir invasion. In that situation Douglas fir saplings can grow faster than beech. Once Douglas fir reaches the canopy it provides an ongoing seed source that could lead to eventual replacement of the mountain beech forest by Douglas fir in that location. Computer modelling indicates that at higher elevations Douglas fir has the potential to spread and significantly alter montane mountain beech forests.

Management techniques

A variety of methods can be used for controlling wilding conifers, with the mix used for any particular operation being dependent on the size, density and location of the infestation, as well as existing and intended vegetation cover or land use, budget and personnel skills.

Potential methods include:

- Burning
- Sheep grazing (at greater than 0.5 stock units/ha)
- Physical control - hand-pulling, ring-barking, felling using a chainsaw or scrub-bar mulching, digger. (Where only physical control methods are used all green foliage must be removed to prevent trees re-sprouting and becoming more difficult to remove the second time).
- Chemical application - foliar spray, cut-stump poisoning, stem poison, bark application of chemical and soil uptake of chemical.

Local eradication is possible with a well planned initial eradication operation and long-term systematic follow-up. If appropriately timed follow-up is omitted, it is likely that introduced conifers will regenerate or recolonise a site. This is a major risk where funding is sporadic.

Appendix Two:

The impact of controlling introduced pests

New Zealand for millennia was an island of small lizards and flightless birds, such as the iconic kiwi. Since land mammals, including humans, first arrived some 750 years ago, the number of species of native vertebrate fauna have nearly halved — at least 51 species of bird have disappeared in that time. Losses sped up dramatically after Europeans arrived in the late eighteenth century.

Pests such as possums, rats, wasps and stoats compete with our native birdlife for food and habitat. They also eat the eggs and young and attack the adults.

Facts and figures

The situation

- New Zealand has one of the highest extinction rates in the world of both plants and animals.
- An estimated 25 million native birds are killed by introduced predators every year.

Stoats

- Stoats alone are responsible for up to **60% of kiwi chick deaths**.
- Just to survive, a stoat needs to eat the equivalent of **12.5 fantail chicks**, every day.



Possums

- There are an **estimated (pg. 15) 30 million possums** in New Zealand, and up to 25 per hectare (10 per acre) in preferred habitats.
- Possums kill birds and chicks and raid nests for eggs, as well as stripping the forest canopy.
- Possums are also the host and carrier of the lethal disease, bovine tuberculosis, and, along with ferrets, are responsible for **44% of new infection** in cattle and deer herds.
- TB infected possums live in about **30% of New Zealand**.
- Sick and dying TB-infected possums come out onto farmland, where **cattle and deer lick their carcasses**.
- All cattle and farmed deer must be registered with TBfree NZ and regularly tested. Any animal found to be infected is slaughtered immediately and herd movement is stopped. Dairy and meat exports are worth more than **\$14 billion annually to New Zealand**.



Rats

- Rats prey on small birds, chicks, eggs and insects in the forest.
- In ideal conditions a rat can **produce 10 offspring every 8 weeks**.
- Prolific seeding ('mast') years in South Island beech forests cause an explosion of rat and stoat populations. This year's mast (in areas being targeted with 1080) is estimated to generate **four million rats**.



Wasps

- New Zealand has one of the highest densities of German wasps in the world.
- They do significant harm to our native birds and insects and are a threat to human health and recreation.
- Wasps are predators and eat huge numbers of native insects and have been seen preying on newly hatched native birds.

