



# **New Zealand Wilding Conifer Management Strategy**

A Non-Regulatory strategy for the  
management of wilding conifers in  
New Zealand

DRAFT  
for discussion



# Contents



# Executive summary

The New Zealand Wildling Conifer Management Strategy is a non-statutory strategy which supports collaborative action between land managers, researchers, regulators and communities to address the critical issues facing wilding conifer management.

A 2011 a current state report identified that failure to respond to the spread of wilding conifers can lead to the costs of control escalating exponentially. The report recommended the development of a national strategy, and improved leadership, coordination and prioritisation to effectively address the risks of wilding conifer spread.

The Ministry for Primary Industries led the development of the strategy in collaboration with a multi-stakeholder working group. The strategy identifies actions for key parties involved in wilding conifer management under four principles; individual and collective responsibility, cost effective and timely action, prioritisation and coordination.

While wilding conifers are pests, planted conifers are valuable resources. Two of the spread-prone conifer species in New Zealand are important commercial species which contribute significantly to forestry exports, New Zealand's third largest export earner after dairy and meat.

Effective management of wilding conifers supports NZ's brand of responsible natural wood products, protects productive farming and forestry land, protects conservation values including native ecosystems and plant species, and protects iconic landscapes for local communities and tourists.

To achieve the vision of the right tree in the right place, there is a role for all New Zealanders to be aware of this expanding issue, and support taking action.



# Introduction

## Why have a strategy?

This strategy aims to support effective collaboration between land managers, researchers, regulators and communities to address the critical overarching issues facing wilding conifer management.

The management of wilding conifers can be complex and often involves a wide range of parties with different drivers or objectives. Control operations can be large and long term, requiring significant investment across multiple parties and land tenures. Fortunately predicting and controlling the spread of wilding conifers is feasible.

The parties involved in the development of the strategy have sought to find a balance between realising the considerable benefit of appropriate conifer plantings, while minimising the adverse effects associated with conifer spread. This strategy seeks to enable each party to understand what role they play in the wider management of wildings, through direct funding or in-kind contribution, and to increase confidence that others' are fulfilling their roles.

We are at a crossroads in the management of wilding conifers. New control methods provide an opportunity to turn the tide of wilding conifer invasion across our iconic high-country, and protect the value of our production and conservation lands for future generations. If we do not act now, the infestations and cost of wilding conifer management will become overwhelming.

## What is the strategy?

It is a non-statutory agreement that provides a shared vision and suite of agreed roles, responsibilities and actions, to support effective wilding conifer management across the country. The objectives of this strategy will be championed by the New Zealand Wilding Conifer Management Group<sup>1</sup>, and implemented by all parties.

### Vision

The right tree in the right place

#### Aim

Prevent the spread of wilding conifers, and contain or eradicate established areas of wilding conifers by 2030

#### Outcomes

Key parties collaborate to minimise the negative economic, environmental and landscape impacts of wilding conifers.

Communities are aware and taking actions for the prevention and effective management of wilding conifers.

Beneficial conifer plantings continue

Landowners do not establish high spread risk conifer plantings, and reduce or prevent spread from new and existing wilding conifer populations.

Wilding conifer management and control is timely and cost-effective

<sup>1</sup> New Zealand Wilding Conifer Group was established as a stakeholder oversight group for a research programme on South Island wilding conifers, and has more recently expanded its role to address policy and management across the country.

The strategy aims to support regional, local or organisational planning, prioritisation and coordination activities necessary for effective wilding conifer management by addressing some of the broader and often challenging issues at the national level. Actions have been identified for key stakeholders reflecting a drive for practical system improvements, and transparency. A summary of specific actions attributed to lead organisations can be found in Appendix 1.

Effective collaboration will be guided by the following overarching principles. Wilding conifer management:

- recognises individual and collective responsibilities;
- is cost effective and timely;
- is prioritised, and;
- is co-ordinated.

## How was it developed?

In 2011 the Ministry for Primary Industries (MPI) commissioned Pacific Eco-Logic to produce an independent report on wilding conifers in New Zealand on behalf of the NZWCMG.<sup>2</sup> A summary report<sup>3</sup> was produced, outlining issues with the current state, and key recommendations for improving wilding conifer management. The development of a national strategy was considered to be the best way to address the recommendations made in the Pacific Eco-logic report.

This strategy development was led by MPI, informed by a multi-stakeholder working group, and tested widely through the New Zealand Wilding Conifer Management Group (WCMG) and other relevant forums. Members of the strategy working group cover a range of perspectives including: Department of conservation (DOC), Land Information New Zealand (LINZ), NZ Defence Force, Regional Councils, District Councils, Scion, NZ Forest Owners Association, Federated Farmers, community groups and MPI.

The strategy draws on recommendations from the Pacific Eco-Logic report and advice from the WCMG on which actions will provide the greatest benefit.

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<sup>2</sup> Wilding conifers in New Zealand: Status Report, December 2011 V A Froude, Pacific Eco-Logic Ltd

<sup>3</sup> Wilding conifers in New Zealand: Beyond the status report, December 2011 V A Froude Pacific Eco-Logic Ltd



# Extent and impacts of wilding conifers

In the right place conifers can provide economic, environmental, social and cultural benefits, such as timber resource, can increase carbon sequestration, decrease erosion, act as a nutrient filter, improve water quality and provide shelter and shade for stock. In the wrong place wilding conifers compete with native vegetation, change existing ecosystems, reduce available grazing land, limit future land use options, visually change landscapes, can affect surface flows and aquifer recharge in water sensitive catchments, and can result in damaging wild fires.

A large area of New Zealand is affected by the spread of introduced conifer trees at various densities. In 2007 the area affected by wilding conifers was estimated at approximately 805,000 ha in the eastern South Island, and approximately 300,000 ha in the North Island.

The original sources of these self established trees were and are plantings for erosion control, research, shelter and landscaping, and production forests. The plantings frequently date back two to three generations and were developed by both private landowners and government organisations such as catchment boards and the New Zealand Forest Service. The management of these legacy plantings and the subsequent spread from these stands is one of the issues the strategy seeks to address.

Two of the ten spread-prone conifer species in New Zealand are important commercial forestry species (radiata pine and Douglas-fir). They make up 96 percent of the plantation estate and are the principal contributors to the \$4.3 billion of forestry exports.<sup>4</sup>

Industry understanding of wilding spread and the factors that contribute to the dispersal of seed has been steadily improving over the past generation. While improved practices are minimising the potential for spread from higher altitude plantings there continue to be opportunities for further improvement. The adoption of new practices is not confined to commercial forest owners. There is a need to improve wider land owner understanding of how to manage new and existing shelter, landscape and erosion plantings on higher altitude and exposed sites.

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<sup>4</sup> New Zealand Forest and Wood Products Industry Strategic Action Plan, March 2012





# Current management of wilding conifers



The 2011 status report estimated that in 2007 approximately \$6 million was spent directly on wilding conifer control across central and local government. An additional unquantified amount is spent annually by community Trusts and private landowners (in cash and in-kind).

There are many examples of collaborative and locally co-ordinated wilding conifer management being successful. Despite this, there remain many areas where a lack of awareness, lack of clarity around accountability and too little funding has resulted in insufficient action and emerging risks not being adequately addressed.

This uncertainty has not only hindered effective policy implementation, but has made it difficult to gain support from stakeholders, the wider community, and potential funders.

The legislative frameworks required to support effective wilding conifer management are largely in place through the Resource Management Act 1991 and the Biosecurity Act 1993, however implementation of requirements within the Acts has been variable due to lack of national coordination or leadership on this issue.

There is an opportunity for greater collaboration regionally and nationally, and for more cost effective control of wilding conifers through surveillance and early intervention. If action is delayed, the impacts of wilding conifers and control costs will increase exponentially.

# How we will improve wilding conifer management

## 1. Recognise individual and collective responsibilities

### **Strategy objective:**

Clarify roles and responsibilities

For wilding conifers to be managed effectively and in a timely manner a co-ordinated, system-wide approach is required, with each party involved undertaking distinct and complementary roles, supported where appropriate by relevant legislation.

A lack of agreement on who is responsible for different management activities has frequently led to delays or ad-hoc management across a range of situations in which wilding conifers become a problem.

The New Zealand Wilding Conifer Management Group (NZWCMG) has sought to clarify and agree roles and responsibilities across the system, in a way that supports the most efficient management decisions.

### **Central Government is well placed to:**

- provide national leadership, including working with the NZWCMG to provide oversight of strategy implementation;
- contribute to the management of legacy infestations on the basis of the wider public good benefit<sup>5</sup>, and as a land occupier for Crown administered land;
- oversee operational control on Crown administered land;
- Promote consistency and alignment of legislation;
- co-ordinate research to improve management tools and best practice;
- comply with regional pest management plan (RPMP) “good neighbour” provisions under the Biosecurity Act 1993;
- promote awareness and support community initiatives.

### **Regional councils/local government is well placed to:**

- provide leadership at the regional/ local level;
- facilitate the development of control plans;
- co-ordinate control operations where multiple parties are involved;
- contribute to the management of legacy infestations on the basis of the public good benefit to regional/local communities;
- establish appropriate (best practice) rules under relevant legislation to ensure that land occupiers are undertaking their roles as outlined below;
- enable wilding conifer control in Regional Plans rather than formulating restrictive rules.

### **Landowners and land managers are well placed to:**

- avoid high risk plantings in high spread risk areas, and manage spread from conifer plantings on their land where that spread is or will impact neighboring land;
- draw on best management practices (and industry standards) in planting and managing sites with the potential for spread;

<sup>5</sup> Including contribution on the cost share basis outlined under objective 2.2, “Public good” in reference to wilding conifer management includes a reduction in the loss of biodiversity, and reduced impact on landscape values.



- work collaboratively with local government, central government and neighbors to manage 'legacy' wilding conifer infestations<sup>6</sup>;
- take early action to remove wilding conifers received either by long distance wind dispersal, or, following the removal of legacy infestations;
- Support the management activities of a neighbouring conifer plantation by allowing access to control fringe spread;
- Consider the management cost of a change in land use which could increase the risk of spread. i.e. retiring land from grazing effectively stops ongoing wilding conifer prevention, and;
- Comply with any relevant legislation including regional pest management plan (RPMP) provisions under the Biosecurity Act 1993, or any land-use rules under the Resource Management Act 1991.
- Meet principles agreed in any forestry accord developed through the implementation of this strategy

#### **Actions:**

- Encourage the key parties involved in conifer management to fulfil their role as outlined under objective 1.1 of the Strategy.
- Develop and agree protocols under an accord for the effective prevention and management of wilding conifer spread from planted forests, shelterbelts, amenity plantings and woodlots.

<sup>6</sup> Including a contribution on the cost share basis outlined under objective 2.

## 2. Be Cost Effective and Timely

### **Strategy objective:**

Gain funding for efficient and timely intervention.

Adequate funding of early intervention for both Crown and private land occupiers will allow removal of seed sources, reduce further spread and result in reduced control costs over the longer term.

Wilding conifer infestations frequently cover a range of land tenure and if early action has not been or is not taken, the cost of managing these sites can grow beyond the resources of the affected landowners. The lack of clarity around who should bear the cost of wilding conifer management has frequently resulted in delayed action and prevented the removal of established infestations.

Early intervention to control the spread of wilding conifers ('a stitch in time saves nine') is highly cost effective, when compared to later management and control of the resulting ongoing spread.

### **Additional and Timely Funding**

Adequate funding to remove seed sources created by historic conifer plantings and long distance dispersal events will realise longer term cost savings, and reduce potential impacts. It will also increase the willingness of other parties to undertake appropriate wilding conifer management.

Improving access to funding for landowners and community trusts will improve efficiencies and protect the investment in work already done.

### **Strategy objective:**

Support fair allocation of costs associated with wilding conifer control

### **Cost Share Model for Collective Action**

A cost share model has been developed to provide a starting point for negotiation when working on collective action management programmes. The model suggests cost shares for scenarios of different origin or source plantings, and land tenure. The suggested cost shares will encourage all parties to do what they can to reduce the costs of the programme.

Many of the wild conifers currently causing problems for landowners are a result of trees that were deliberately planted in the past. As there is a lag phase, where the impacts are not felt for many years after initial spread, it is unfair to hold current landowners wholly responsible for problems caused by previous landowners and neighbours.

The model takes this into account and categorises the origin of wilding conifer spread by legacy plantings, RMA authorised plantings, or future plantings against land tenure.

For each scenario, a cost share is proposed for each of the parties who exacerbate the spread of wilding conifers, and those who benefit from wilding conifer control.

**Table 1: Model of suggested cost shares for collective wilding conifer management**

	Preventing spread across boundaries		Control of wildings within one privately occupied property		Control of wildings within one Crown occupied property	
Legacy plantings and legacy wildings	Exacerbators:		Exacerbators:		Exacerbators:	
	Neighbouring land occupiers who destock or change land use to reduce grazing pressure	10%	Land occupiers/ owners who have wilding conifers	20%	Land occupiers/ owners who have wilding conifers	20%
	Land occupiers/ owners who have wilding conifers spreading beyond their property	10%	Beneficiaries:		Beneficiaries:	
	Beneficiaries:		Land occupiers/owners who have wilding conifers	20%	Land occupier/ owner (Central Govt)	20%
	Central government	35%	Neighbouring land occupiers/owners	10%	Neighbouring land occupier/ owner	10%
	Regional government	30%	Central government	30%	Central government	30%
	Neighbouring land occupiers/ owners	15%	Regional government	20%	Regional government	20%
Post-1990 RMA plantings where specific conditions don't apply	Exacerbators:		<p>The suggested cost shares are based on the biosecurity funding principles, which promote efficiency by encouraging parties to:</p> <ul style="list-style-type: none"> <li>change their behaviour to reduce the costs of control or risks of wilding conifer spread;</li> <li>assess whether the benefits of control outweigh the costs, and;</li> <li>determine whether control is being delivered cost effectively.</li> </ul> <p>In certain cases, a group considering collective wilding conifer control may choose to make adjustments to cost shares based on fairness or practicality. However, it is considered that in all cases both exacerbators and beneficiaries should bear at least some of the costs.</p>			
	Neighbouring land occupiers who destock or change their land use to reduce grazing pressure	10%				
	Land occupiers/owners who have wilding conifers spreading beyond their property	10%				
	Beneficiaries:					
	Central government	35%				
Regional government	30%					
Neighbouring land occupiers /owners	15%					
Future (post-2014) planting of high risk species	Exacerbators:					
	Land occupiers who plant high risk species	80%				
	Neighbouring land occupiers who destock or change their land use to reduce grazing pressure	10%				
	Beneficiaries:					
	Central government					
Regional government	10%					
		Neighbouring land occupiers /owners				



**Actions:**

- Determine options for funding wilding conifer control, including establishment of a national fund to address highest priorities.
- Placeholder for possible action referring to CBA output.
- Investigate options for assisting community trusts to obtain funding in a timely way.

### 3. Prioritise

#### **Strategy objective:** Prioritise wilding conifer management

Principles and management criteria have been developed to help land managers collectively determine the highest priorities, and the most appropriate and cost effective management objective for each type of wilding conifer infestation.

Land occupiers manage wilding conifers for a range of different reasons; to protect productive agricultural or forestry land, protect indigenous vegetation and biodiversity, and rare or unique ecosystems, maintain water yields, or preserve landscapes for recreational, cultural or aesthetic enjoyment. Overall the management of wilding conifers minimises the negative impacts of wilding conifers on certain areas. While a reduction in the impacts of wildings is a common end goal for landowners, the management strategies adopted, budgets and timeframes can be difficult to align.

National, regional and local prioritisation, along with a co-ordinated approach, allows parties to understand how their priorities fit within a regional or national context. This supports strategic and efficient resource allocation, within parties' ability to reallocate effort.

It is acknowledged that any prioritisation will be based on the best information that is available at the time of assessment. Prioritisation can be reviewed through time as objective 3.2 [monitoring and mapping] provides better information on the situation nationally and as the management environment changes (through land use change, new tool development, etc).

#### **The prioritisation process**

The sequence of steps outlined below is intended as a starting point for land managers to and decision makers when prioritising control of wilding conifers.

- Map.
- Evaluate management objectives based on criteria.
- Identify stakeholders.
- Establish lead.
- Rank priority against values.
- Agree cost share.

#### **Identify values at site**

The selection of highest priority sites should consider the potential negative and positive impacts of wilding conifer control on the values the land holds. These values may be environmental, economic, social and cultural including:

- biodiversity (protect ecosystem or particular species);
- maintenance of specific land-use productivity;

- maintenance of landscape appearance;
- direct risk to human livelihood;
- maintenance of current natural resource mix;
- minimisation of direct off-site effects;
- social/community impact.

Measurable indicators could be chosen for each of these values.

### Evaluate appropriate management objective

The evaluation of management objectives should be linked to criteria and impacts, and should be applied on a site by site basis, considering cost efficiency.

Management objective	Criteria
Exclusion	Zero density, high value of land's current state, cost-effective to exclude, risk of invasion
Eradication Containment	Ability to remove all individuals, low-risk of reinvasion, ability to recover site to desired outcome, an area which benefits.
Progressive containment	Defendable boundaries, feasible to remove sources or stop further spread, long term funding for knockdown and ongoing maintenance.
Containment/Sustained control	Integrated pest management outcomes, externality impacts, widely distributed, long term funding commitment, occupies almost all suitable habitat.

#### Action:

- (Decide and approve criteria and indicators for their evaluation)
- Apply criteria to known wilding infestations based on best information available, to inform allocation of funding and control effort.

#### Strategy objective:

Develop consistent monitoring and mapping

Standard criteria for data collection and a national system for recording and mapping data on wilding conifer spread will improve the quality of information available to managers and decision makers.

Data on wilding distribution, density and control efforts are currently gathered and recorded in varying ways by the range of parties involved. This makes it difficult to aggregate information and gain a national picture of the issue, or to assess overall progress being made through management activities.

A nationally agreed approach to monitoring will allow:

- a better measure of wilding spread and density trends over time;
- more accurate assessments of control costs and effectiveness;
- national prioritisation;
- improved modeling of predicted spread.

Further development of predictive modelling<sup>7</sup> will help land managers identify low risk areas suitable for afforestation, and high risk areas where planting of certain species will require management to prevent spread.

**Actions:**

- Agree consistent standards for collecting, recording and sharing data on wilding conifer distribution, density and control efforts.
- Develop a national tool to map wilding conifer distribution, and provide a repository for ongoing monitoring data.
- Refine prediction modelling of wilding spread based on the best information available.

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<sup>7</sup> [insert explanation of predicative model, SCION.]

## 4. Co-ordinate

### **Strategy objective:**

Promote consistency in policy across organisations

The legislative frameworks needed to support the implementation of this strategy are largely in place. The agreed roles and responsibilities in this strategy provide a sound basis to inform greater consistency and alignment in the way these are implemented.

Inconsistent regulation exaggerates the tension that exists between managing conifers as both a resource and a pest. Regional councils are responsible for ensuring the wider community is protected from the impacts of wilding conifers, while landowners should not have unnecessary compliance costs imposed on responsibly managed forest plantations.

A particular opportunity exists in relation to local government regulation of both plantings of spread-prone conifers, and management of existing wilding conifers. It is expected that appropriate regulation will help drive more efficient management decisions and reduce the long term cost of wilding conifers.

Currently the responsibility for managing wilding conifer spread is addressed differently from region to region through varying District and Regional Council policies and rules under the Resource Management Act 1991, and Regional Council rules in Regional Pest Management Plans.

Greater consistency will ensure:

- roles and responsibilities agreed in this strategy are supported;
- the inaction of a few does not undermine the positive action and management investment of others; and,
- peripheral legislation does not cause unintended barriers to the management of wilding conifers.

### **Central and regional leadership**

A national policy mechanism such as a National Environmental Standard, or, National Policy Statement could promote consistency through the development of best practice guidance for regional policy statements or district plans developed under the Under the Resource Management Act 1991 (RMA).

The development of land use rules under the RMA could incorporate the wilding conifer 'risk calculator'<sup>8</sup> to assess and reduce the risk of new wilding conifers establishing. Appendix Two contains the June 2012 version of the calculator, for use by councils and other agencies. The calculator has been critically reviewed and will be updated in the Strategy as new research becomes available.

Greater consistency in regulation will provide greater certainty for those parties planting new conifers, resulting in an overall improvement in management.

The development of an appropriate and consistent approach to management of wilding conifers in regional pest management plans will provide an instrument to ensure any control required of the landowner causing the spread and imposing cost on a neighbouring property is effective and reasonable. Any regulation in regional pest management plans, under the Biosecurity Act 1993, will need to take into account the value of commercial species in managed forests.

<sup>8</sup> Ledgard & Langer 1999, Ledgard 2006. Wilding conifer 'risk calculator' refers to guidelines developed on considerations when planting spread prone conifer species, in order to minimise the risk of spread.

**Actions:**

- Work collaboratively to develop agreed best practice RPMP rules, or local strategies, which address wilding conifer spread across boundaries without capturing appropriate plantings. i.e. Investigating new regulatory options such as development of site-led rules.
- Develop best practice RMA policies and rules as a proactive means of addressing wilding risks associated with new plantings. This could include a refined version of the wilding risk calculator.
- Promote consistency across local government including exploring national policy mechanisms to ensure consistent regulation relating to wilding conifer management.

**Strategy objective:**

Co-ordinate regional and local operations across organisations

A co-ordinated approach to wilding conifer control operations will provide efficiencies through sharing of baseline costs.

Overarching regional coordination makes it easier to fund large control operations from multiple sources of funding, enables sharing of baseline costs, reduces duplication, and provides a degree of protection for investment in wilding control. The benefits of this approach have been realised in areas such as Mid-Dome, Southland, Wakatipu Basin, Roaring Meg, Queenstown and in the Central North Island where collective working groups have assumed responsibility for large infestations and have worked with councils and agencies to improve co-ordination and access to funding.

The Canterbury Wilding Conifer Strategy 2010-2015<sup>9</sup> is another example of agency collaboration for more effective planning, prioritisation and delivery of wilding conifer control work which supports multiple values.

Maintaining the Wilding Conifer Management Group will ensure a forum exists which can promote co-ordinated operations.

**Action:**

- Facilitate co-ordinated control amongst land owners and other stakeholders.

**Strategy objective:**

Increase understanding of wilding conifer impacts, inspire public action through education and support for community initiatives.

Increased public understanding through education and support for community initiatives will inspire action.

The public, land managers and decision-makers are not always aware of the potential impacts of wilding conifers.

This can result in a lack of timely action to address establishment and spread. A lack of awareness of the long

<sup>9</sup> Canterbury Wilding Conifer Strategy 2010-2015 <http://ecan.govt.nz/publications/General/wilding-conifer-strategy.pdf>

term wilding risks associated with poorly managed conifer plantings can also result in new wilding infestations establishing.

Wider support from the general public and funders for wilding conifer control will enable more cost effective early intervention. Those with an interest in wilding conifer management can advocate for wilding conifer management to landowners, public, and agencies, dispersing key messages through a range of channels including websites, workshops, billboards and events.

Visibility of the results of different management decisions over time will aid decision makers and encourage early control of emerging infestations and prevention of expensive wilding problems.

**Action:**

- Develop communications plan to raise awareness of issues relating to wilding conifer management and build advocates, including:
  - undertake social marketing/behaviour change programme to key audiences;
  - develop a visual tool to show changes over time from different conifer species and management approaches;
  - promote good news stories of control successes.

**Strategy objective:**

Support ongoing research to improve cost-effectiveness of control, and reduce risk of establishment

Significant improvements in prevention, control and monitoring tools can greatly improve efficiency. Continuing to develop additional tools and further refine existing tools will enable land managers to 'do more for less'.

Research into factors for establishment and spread of wilding conifers can inform and direct management. Identifying pathways to prevent spread can be the most efficient way to control wilding conifers. Integrated management incorporating ecological knowledge of spread, establishment and control methods allow more effective decision making and management.

Recent developments in herbicide control tools have realised significant benefits at some sites. New ground-based chemical application methods are four to ten times faster than traditional manual control. The aerial spot spray application method is more than five times faster than using a helicopter to move people to manually control trees. The new tools and methods enable a greater area to be treated for the same cost, significantly increasing efficiency and making the effective wilding management more achievable.

The WCMG will continue to support research into the range of tools to improve wilding conifer management.

**Action:**

- WCMG maintain oversight of research and identify priorities and needs to support wilding conifer management.
- Explore any opportunities for addressing research needs.

**Strategy objective:**

Promote information sharing of best practice and technological gains in control methods

Up to date best practice for wilding conifer control tools, monitoring methods and land management options can be difficult for landowners and land managers to access.

The Wilding Conifer Management Group is well placed to continue their work of collating and disseminating agreed best practice and where necessary ensure gaps in best practice are filled. Increased access to best practice information will result in improved efficacy.

**Action:**

- Promote development and uptake of current best practice for wilding management.
- Wilding conifer.org.nz website is maintained and recognised as the site to go to for information.

Placeholder

Signatories to the National Wilding Conifer Management Strategy



Overarching Principles	Specific Objectives	Strategy Actions	Lead
<b>Recognise individual and collective responsibilities</b>	1.1 Clarify roles and responsibilities	Encourage the key parties involved in conifer management to fulfil their roles as outlined under objective 1 of the strategy. Develop and agree protocols under an accord for the effective prevention and management of wilding conifer spread from planted forests.	MPI ? MPI and NZWCMG
	2.1 Gain funding for collective action and early intervention	Determine options for funding wilding conifer control, including establishment of a national fund to address highest priority sites. Placeholder for possible action referring to CBA output. Investigate options for assisting community trusts to obtain funding in a timely way.	MPI, DOC, LINZ, NZDF MPI ?
<b>Be Cost Effective and Timely</b>	3.1 Prioritise wilding conifer control work for efficient management	Apply criteria to known wilding infestations based on best information available, to inform allocation of funding and control effort.	MPI supported by NZWCMG
	3.2 Develop consistent monitoring and mapping	Agree consistent standards for collecting, recording and sharing data on wilding conifer distribution, density and control efforts. Develop a national tool to map wilding conifer distribution, and provide a repository for ongoing monitoring data. Refine prediction modelling of wilding spread based on the best information available.	SCION & LINZ LINZ SCION
<b>Prioritise</b>	4.1 Promote consistency in policy across organisations	Work collaboratively to develop agreed best practice RPMP rules, or local strategies, which address wilding conifer spread across boundaries without capturing appropriate plantings.i.e. Investigating new regulatory options such as development of site-led rules Develop best practice RMA rules for new plantings, this could including a refined version of the wilding risk calculator.	Regional Councils District Councils
	4.2 Co-ordinate operations	Promote consistency across local government include exploring national policy mechanisms to ensure consistent regulation relating to wilding conifer management.	MPI, MFE Regional Councils
<b>Co-ordinate</b>	4.3 Increase understanding of wilding conifer impacts	Facilitate co-ordinated control amongst land owners and other stakeholders. Develop communications plan to raise awareness of issues relating to wilding conifer management.	MPI
	4.4 Support ongoing research to reduce the cost of control and risk of establishment	WCMG maintain oversight of research, and identify priorities and needs to support wilding conifer management. Explore any opportunities for addressing research needs.	NZWCMG champion
	4.5 Promote information sharing of best practice and technological gains in control methods	Promote development and uptake of current best practice for wilding management. Maintain Wilding conifer.org.nz website as the authoritative site to go to for information.	NZWCMG



# Appendix 1:

## Controlling wilding conifers: considering where the costs could lie

### Purpose

1. This paper provides a model to apply to specific collective action management programmes as a starting point to negotiate where the costs of a programme should lie, for inclusion in the New Zealand Wilding Conifer Management Strategy.

### Proposed model for where costs fall in different situations

2. At the Wilding Conifer National Strategy Working Group meeting on 11 July 2013, the Group went through an exercise of identifying where the costs should fall for legacy, post-Resource Management Act (RMA) plantings, and future plantings of wilding conifers in different situations.
3. Based on the analysis in this paper and the results of the Working Group's exercise, the table below provides a starting point for where the costs of wilding conifer management could fall. Users may like to consider making further adjustments to the allocation to reflect fairness and the practicalities of the particular situation. Users may also consider whether it makes sense for different parties to bear the costs at different times, for example for one party to pay for initial knock-down and another party to be responsible for ongoing control.
4. For example, in cases of long distant wind dispersal events, it would not be practical to establish who the exacerbators and beneficiaries are. From a practical point of view, there is a reasonable expectation that receiving landowners keep land clear, and are responsible for removing any seedlings while they are small.
5. There are at least four ways that a party could bear costs:
  - direct costs;
  - contributing funding;
  - in-kind contributions;
  - accepting impacts, for example, dealing with the impacts of distance spread could be considered equivalent to accepting an overall cost share of 10%.

### Background

6. Introduced conifer species have been planted in New Zealand over many years for a variety of purposes. Conifers can provide a timber resource (including firewood), increase carbon sequestration, decrease erosion and in-stream sedimentation, and provide shelter and shade for stock. Conifers can be used as a raw product for industrial processes such as pulp and paper production and provide landscape amenity values.
7. Naturally regenerated or wilding introduced conifers have established from plantings established for a number of these purposes. Wilding conifers can have various adverse effects and pose a series of environment risks, as described below:
  - a. local extinction of native plant communities and populations of native plant and animal species in some cases;
  - b. lower productivity of extensive or marginal farmland;
  - c. reduction in catchment flows where long-term seasonal soil moisture deficits (such as the Upper Ashley catchment) to levels that adversely affect in-stream aquatic ecosystems and existing direct uses of the water;

	Preventing spread across boundaries		Control of wildings within one privately occupied property		Control of wildings within one Crown occupied property
<b>Legacy plantings and legacy wildings</b>	<p>Exacerbators:</p> <ul style="list-style-type: none"> <li>Neighbouring land occupiers who destock or change their land use to reduce grazing pressure</li> <li>Land occupier /owners who have wilding conifers spreading beyond their property</li> </ul> <p>Beneficiaries:</p> <ul style="list-style-type: none"> <li>Central government</li> <li>Regional government</li> <li>Neighbouring land occupiers/owners</li> </ul>	<p>10%</p> <p>10%</p> <p>35%</p> <p>30%</p> <p>15%</p>	<p>Exacerbators:</p> <ul style="list-style-type: none"> <li>The land occupier/owner who has the wilding conifers</li> </ul> <p>Beneficiaries:</p> <ul style="list-style-type: none"> <li>The land occupier/owner who has the wilding conifers</li> <li>Neighbouring land occupiers / owners who are not currently affected</li> <li>Central government</li> <li>Regional government</li> </ul>	<p>20%</p> <p>20%</p> <p>10%</p> <p>30%</p> <p>20%</p>	<p>Exacerbators:</p> <ul style="list-style-type: none"> <li>The land occupier/owner who has wilding conifers (i.e. the central government agency)</li> </ul> <p>20%</p> <p>Beneficiaries:</p> <ul style="list-style-type: none"> <li>The land occupier/owner who has wilding conifers (i.e. the central government agency)</li> <li>Neighbouring land occupiers/owners who are not currently affected</li> <li>Central government</li> <li>Regional government</li> </ul> <p>10%</p> <p>30%</p> <p>20%</p>
<b>Post – RMA plantings where specific conditions don't apply</b>	<p>Exacerbators:</p> <ul style="list-style-type: none"> <li>Neighbouring land occupiers who destock or change their land use to reduce grazing pressure</li> <li>Land occupiers/owners who have wilding conifers spreading beyond their property</li> <li>Local government</li> </ul> <p>Beneficiaries:</p> <ul style="list-style-type: none"> <li>Central government</li> <li>Regional government</li> <li>Neighbouring land occupiers/owners</li> </ul>	<p>10%</p> <p>10%</p> <p>25%</p> <p>10%</p> <p>20%</p> <p>15%</p>			
<b>Future planting of high risk species (afforestation)</b>	<p>Exacerbators:</p> <ul style="list-style-type: none"> <li>Land occupiers who plant high risk species</li> <li>Neighbouring land occupiers who destock or change their land use to reduce grazing pressure</li> </ul> <p>Beneficiaries:</p> <ul style="list-style-type: none"> <li>Central government</li> <li>Regional government</li> <li>Neighbouring land occupiers/owners</li> </ul>	<p>80%</p> <p>10%</p> <p>10%</p>			

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- d. loss of landscape values, especially where those landscapes are characterised by indigenous tussock lands and other low stature indigenous vegetation;
  - e. potential impact on Maori cultural values in some locations;
  - f. externality impacts to neighbouring land causing land use opportunity costs and increased fire risk.
8. Many of the wild conifers currently causing problems for landowners are a result of trees that were deliberately planted in the past. It is unfair to hold current landowners wholly responsible for problems caused by previous landowners and their neighbours.
  9. In addition, there is a long lag phase, where the impacts of spread are not felt for many years after initial spread occurs. There is also an element of irreversibility as, once the wild conifers are well established, it becomes extremely expensive to remove them.
  10. Wilding stands are categorised as 'legacy' if they were established before the Resource Management Act 1991 came into force or spread from land planted before that time. Post-RMA plantings are those trees planted in accordance with the Resource Management Act, either as a permitted activity under a District Plan, or a consented activity with conditions. Future plantings refer to any plantings of high-risk trees after the wilding pine strategy is adopted.

## The Biosecurity Funding Principles

11. The biosecurity funding principles have the primary goal to encourage efficient levels of biosecurity intervention by ensuring biosecurity services are most appropriately funded by those that can:
  - change their behaviour to reduce the costs of the service or the risks that give rise to the need for the service; and/or
  - assess whether the benefits of the service at its current level of provision outweigh the costs and consequently influence the level of service provided; and/or
  - determine whether the service at its current level of provision is being delivered cost effectively.
12. Note that the biosecurity funding principles strive to ensure the most efficient way for costs to fall. They consider only future behaviours, and do not consider past behaviour. For this reason, the outputs may not reflect what is considered an equitable way for costs to fall and may need to be adjusted to take account of fairness and practicality.

### **Applying the funding principles to legacy plantings and legacy wildings**

13. The benefits of controlling legacy plantings and legacy wilding conifers are preventing or reducing the following impacts. The parties who benefit in each of these cases is identified below:
  - a. change in ecosystems and loss of native biodiversity – the public (could be national or regional public depending on the significance of the biodiversity),
  - b. lower productivity of extensive or marginal farmland – landowners and neighbours,
  - c. lower water yield in water sensitive catchments – landowners and users nearby and downstream of the affected area i.e. users within affected catchment,
  - d. impacts on landscape values – landowners and users nearby the affected area; the local community; visitors and tourists; and the public (options value),
  - e. impacts on Maori cultural values – affected iwi,
  - f. externality impacts (land use opportunity costs and increased fire risk) – neighbours of affected area.

14. There are two types of exacerbators of legacy wilding conifers. The first are land occupiers who change their existing land use from one that suppresses wilding conifer spread to a land use that does not suppress spread. Note that the change in land-use could be either on the land that currently has legacy wilding conifers, or on the adjacent or nearby 'receiving' land. These are 'active' exacerbators in that they make an active decision that increases the risk of wilding conifers spreading.
15. The second group of exacerbators are land occupiers who have wild conifers on their land and are not preventing them from spreading onto adjacent land. These are 'passive' exacerbators.

**Principle 1: Which party is best placed to change their behaviour to reduce the costs of the service or the risks that give rise to the need for the service?**

16. There is little ability for those who value an affected area's ecosystem, landscape or Maori cultural value to change their behaviour to reduce the costs of wilding conifer control. However, the other beneficiaries may be able to change their behaviour to some extent to reduce the amount of wilding conifer control. For example, other beneficiaries can potentially achieve their desired outcomes in other ways (e.g. by using their land for activities that are not affected by the presence of wilding pines or lowering water consumption). However, this may not be practical or reasonable in some situations. If biodiversity, landscape and Maori cultural beneficiaries were required to bear the costs of wilding control, the only way they could reduce their costs is by accepting lower levels of their desired outcomes.
17. All land occupiers are able to change their behaviour to prevent / reduce the spread of wilding conifers by:
  - removing wilding conifers at wilding seed take-off points on their land (and other areas);
  - planting species that are not spread-prone in boundaries to act as a barrier to spread; and/or
  - changing or maintaining their current land-use to one where fringe-spread seedlings are browsed.
18. Under this principle, there is a case for some beneficiaries to bear the costs (farmers who want to reduce the loss of productivity and those who use water in water sensitive catchments) and 'active' exacerbators. There is a weaker case to charge other exacerbators and other beneficiaries.

**Principle 2: Which party is best placed to assess whether the benefits of the service at its current level of provision outweigh the costs and consequently influence the level of service provided?**

19. Those who receive the benefits of wilding conifer control are best placed to assess whether the benefits of wilding conifer control outweigh the costs. There is a strong case for beneficiaries to bear at least some of the costs of wilding conifer control under this principle, because it means they will not demand wilding conifer control if the costs outweigh the benefits. If they are not bearing any of the costs, they will have an incentive to demand more of the service (because they are effectively getting it for free).
20. Exacerbators are much less able to determine whether the benefits outweigh the costs. This is because they are generally not receiving benefits, but may be subjected to the costs.
21. Under this principle, there is a strong case for all beneficiaries of wilding conifer control to bear the costs.

### **Principle 3: Which party is best placed to determine whether the service at its current provision is being delivered most cost-effectively?**

22. Land occupiers may have information that can improve the cost-effective delivery of wilding conifer control on their land that other parties do not have. As a result, there is a case under this principle for the costs of wilding conifer management to fall on land occupiers.

### **Overall assessment**

23. From an efficiency perspective, there is a case for both land occupiers who have wilding conifers spreading beyond their property, and those parties who benefit from wilding conifer control to bear the costs of control for legacy plantings and legacy wildings. Of those who benefit from control, there is a slightly stronger case for farmers who want to reduce the loss of productivity and those who use water in water sensitive catchments to bear the costs, rather than those who value the biodiversity, landscape and Maori cultural values. Of those who exacerbate the problem of wilding conifers, there is the strongest case for active exacerbators to bear the costs, rather than passive exacerbators.
24. Putting the three principles together, the case for which groups should bear the costs of managing legacy conifer plantings and legacy wilding conifers from strongest to weakest is as follows:
- a. beneficiaries of wilding conifer control
  - b. exacerbators who make an active decision to change their land use to one that does not suppress the spread of wilding conifers between property boundaries
  - c. 'passive exacerbators' who have wild conifers on their land and are not preventing them from spreading onto adjacent land.
25. The proportion of total costs of managing legacy plantings and wildings that each party should bear should be determined based on how strong the case above is in relation to each party.
26. It may not be fair to require current 'passive exacerbators' of legacy plantings to be required to bear their full share of the costs of control. Current landowners should not be held responsible for problems caused by previous landowners and their neighbours. The cost allocations have been adjusted to reflect fairness.

### **Post-RMA plantings**

27. District Plans under the Resource Management Act outline how future activities will be controlled based on the potential environmental effect(s) the activity may have in an area. Within the District Plans, activities are classified into five categories; permitted, controlled, discretionary, non-complying and prohibited. Resource consents are required for controlled, discretionary and non-complying activities. Applicants seeking consent for any activity are required to meet the conditions set out in the relevant district plan. This may include an assessment of the activity's effects on the environment.
28. It may not be fair to require owners of land where conifers were planted under the RMA to meet the same costs as owners of land with legacy plantings, as the district council took the effects of the forest on the environment into account when determining the appropriate conditions on land use. This means that the costs borne by land occupiers of post-RMA plantings have been adjusted.

## Applying the funding principles to future plantings

29. The benefits of preventing wilding spread from future plantings of spread-prone conifers are preventing or reducing the following impacts. The parties who benefit in each of these cases is identified below:
- a. downstream costs and impacts – the public (could be national or regional public depending on the significance of the costs and impacts);
  - b. externality impacts – neighbours of affected area.

30. The exacerbators are those who plant spread-prone conifers, and neighbouring land occupiers who change their existing land use from one that suppresses conifer spread to a land use that does not suppress spread.

### **Principle 1: Which party is best placed to change their behaviour to reduce the costs of the service or the risks that give rise to the need for the service?**

31. The neighbouring beneficiaries of preventing wilding spread from future plantings of spread-prone conifers may be able to change their behaviour by changing their land use to one that suppresses the spread of wilding conifers. Similarly, those who would be subject to downstream costs without spread prevention from future plantings may be able to change land use. However, in both cases, this is unlikely to be a practical or reasonable solution in most situations. In the case of downstream impacts, the only opportunity to change behaviour is by accepting these impacts to some extent.
32. The exacerbators of wilding spread from future plantings can change their behaviour to reduce the risk by planting species that are not spread-prone in boundaries to act as a barrier to spread, by choosing sites with low spread risk, or by choosing to plant a less spread-prone species. If, in the future, the costs of managing spread from new plantings are borne by the person or group who plants the trees, they will be able to factor the costs into their decision about whether or not to plant.
33. Under this principle, there is a stronger case for exacerbators to bear the costs, as they are more easily able to change their behaviour to reduce the risks of spread. For trees planted in the future, this would result in the most efficient outcome, as the decision to plant new trees would be informed by the full costs and benefits of doing so.

### **Principle 2: Which party is best placed to assess whether the benefits of the service at its current level of provision outweigh the costs and consequently influence the level of service provided?**

34. Those who receive the benefits of wilding conifer control are best placed to assess whether the benefits of wilding conifer control outweigh the costs. There is a strong case for beneficiaries to bear at least some of the costs of wilding conifer control under this principle, because it means they will not demand wilding conifer control if the costs outweigh the benefits. If they are not bearing any of the costs, they will have an incentive to demand more of the service (because they are effectively getting it for free).
35. Under this principle, there is a strong case for the beneficiaries of managing the spread from future plantings of wilding conifers to bear the costs.



**Principle 3: Which party is best placed to determine whether the service at its current provision is being delivered most cost-effectively?**

36. It is difficult to know which party is best placed to determine whether the service is being delivered cost-effectively, as it will depend on the specific actions taken to manage the spread.

## Overall assessment

37. From an efficiency perspective, there is a case for parties who plant spread-prone conifers, and for parties who benefit from wilding conifer control to bear the costs of control for future plantings.
38. Putting the three principles together, the case for which groups should bear the costs of managing the spread of wilding conifers from future plantings from strongest to weakest is as follows:
- a. exacerbators who plant spread-prone conifer species in the future;
  - b. beneficiaries of wilding conifer control;
  - c. neighbouring land occupiers who change their existing land use from one that suppresses wilding conifer spread to a land use that does not suppress spread.
39. The costs of any programme to manage spread from future plantings of spread-prone conifers should fall based on the strength of the case above in relation to each group.

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# Notes



